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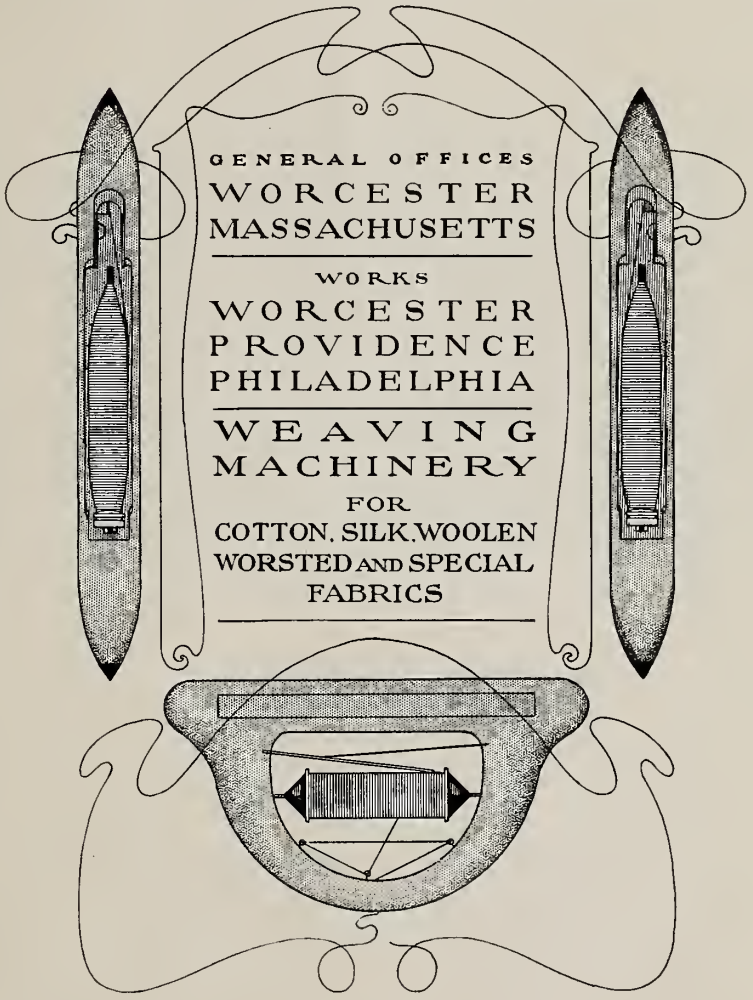
CROMPTON AND KNOWLES LOOM WORKS

GENERAL OFFICES AND WORKS
WORCESTER, MASS.
UNITED STATES OF AMERICA

BRANCHES
PROVIDENCE, R. I. — PHILADELPHIA, PA.
U. S. A.

CROMPTON & KNOWLES LOOM WORKS



GENERAL OFFICES
WORCESTER
MASSACHUSETTS

WORKS
WORCESTER
PROVIDENCE
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WEAVING
MACHINERY
FOR
COTTON, SILK, WOOLEN
WORSTED AND SPECIAL
FABRICS

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Crompton & Knowles Loom Works

MANUFACTURING PLANTS

General Offices and Works

WORCESTER, MASSACHUSETTS

UNITED STATES OF AMERICA

Works also at

PROVIDENCE
RHODE ISLAND

PHILADELPHIA
PENNSYLVANIA

ADDRESS ALL CORRESPONDENCE TO THE CORPORATION

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DEC 12 1918

INTRODUCTORY

CROMPTON & KNOWLES LOOM WORKS takes pleasure in presenting to its customers and textile manufacturers this catalog in which may be found illustrations of many of the different varieties of looms manufactured.

All the looms shown are in general use for weaving various fabrics of cotton, woolen, worsted, silk, etc. Those familiar with the development of the textile industry will appreciate the value of our long experience in designing and building weaving machinery. The inventive skill and genius of the best minds in the textile industry have produced these highly developed looms which may be found in many mills throughout the country.

The development of these looms has been made possible by bringing together under one management a number of independent companies formerly engaged in building looms, dobbies, jacquards, etc., for the manufacture of textile fabrics.

Among the prominent companies now incorporated with the Crompton & Knowles Loom Works are the Crompton Loom Works, established in 1851 under the name of George Crompton; The Knowles Loom Works, founded in 1863, under the name of L. J. Knowles and Brother; the George W. Stafford Mfg. Company, the Gilbert Loom Company, the M. A. Furbush and Sons Machine Co., the A. H. Steele Loom Co. and the Crompton-Thayer Loom Company.

It is the purpose of this catalog to present some of the principal types of looms which we manufacture, but it is impossible to describe all the distinguishing features regarding the looms, in a catalog of this kind.

Correspondence in reference to any of the looms or weaving problems is solicited and we shall always be glad to furnish all the information possible regarding the looms we build.

CROMPTON & KNOWLES LOOM WORKS.

Heavy Worsted Loom

THE Heavy Worsted Loom is generally recognized as the standard loom for weaving the heaviest grades of worsted and woolen fabrics. The character of its construction and principles of its operation are now so well known as to make necessary only a brief outline of its salient features, and points of difference from our other looms of this type.

The illustration shows a 30 harness 4 x 4 box loom, 82 inches between swords. The distance between swords ranges from 48 inches to 92 inches for worsted suitings, but the loom may be had in a variety of widths desired for this class of work. The harness motion operates on the Knowles open shed principle, the head being driven by an upright shaft geared to the bottom shaft, and the harness and box motions being so combined as to always move in harmony with each other.

The take-up is either the combined positive and conditional ratchet ring, or positive worm as shown, with lower cloth roll operated by slip friction. There are ten change gears with the takeup. The loom has a filling stop motion and selvage motion. The frame and all the working parts are heavy, being designed to meet every requirement of worsted or woolen manufacture.

The driving pulley is on a cross shaft journalled in an adjustable pulley frame, which affords a change of speed through a variety of driving pinions. Three of these pinions are furnished with the loom. When desired, this loom is equipped with motor drive. Two to one driving gears are recommended on all these looms up to 100 inches in width. Beyond this equal driving gears are used.

The let-off is of the steel band friction type, with three bearings in the beam stands. This construction accommodates a single beam with 18-inch or 22-inch flanges, or two beams with 14-inch flanges. Friction is regulated by weights in connection with steel bands over the ratchet friction heads. These ratchet heads permit the weaver to turn back the beam by hand without disturbing the let-off levers.

One and one-half beams are furnished with each loom.

SIZE OF PULLEY—12-inch diameter, 3¾-inch face.

SPEED—For 100 picks of loom per minute, with an 18-tooth pinion on two to one geared loom, the driving pulley should make 217 revolutions.

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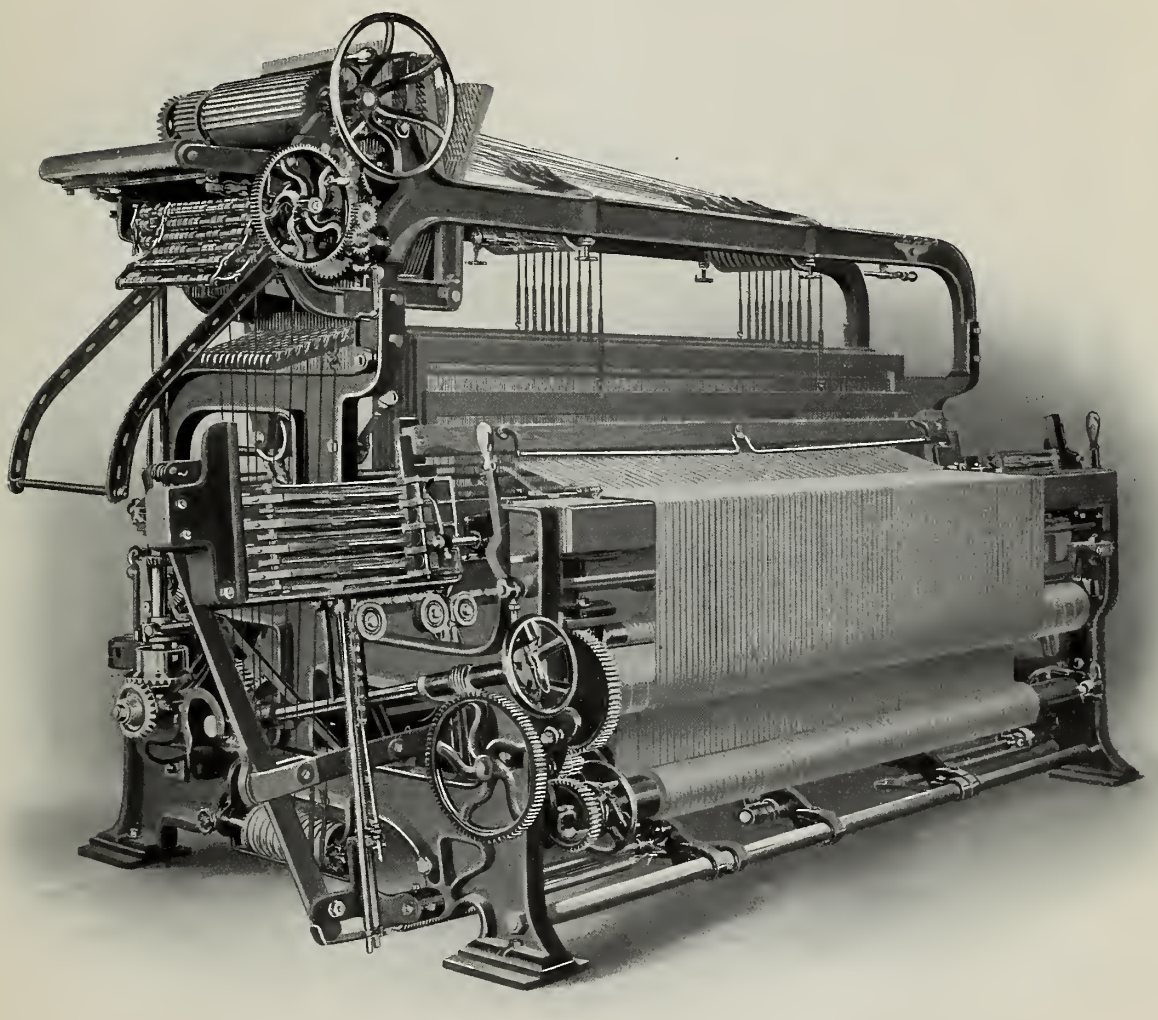


HEAVY WORSTED LOOM

Intermediate Worsted Loom

THE Intermediate Worsted Loom is constructed on the same lines and embodies the same general principles as the Heavy Worsted Loom, but it is lighter throughout.

It is adapted to a wide range of weaves between the heavy worsteds and the light dress goods, and its relatively lighter construction in connection with its high speed makes it a most economical and efficient machine.

The loom may be had in a variety of widths up to 82″ between swords and with other combinations of boxes, either with a positive cam box motion or with a chain box motion connected with the harness motion. The head is driven from the crank shaft by means of eccentric gears and upright shaft. The driving gears are two to one.

The take-up is either the combined positive and conditional ratchet ring or positive worm. There are ten change gears with take-up. The selvage is operated from the lower end of the upright shaft. There is a centre filling stop motion.

While primarily designed for men's worsteds of light and medium weights, the Intermediate Worsted Loom is especially adapted for weaving dress goods.

The type shown in the illustration is a full fancy loom, 25 harness, 4 x 4 box, equipped with the well known Knowles open shed harness motion, which is so combined with the chain box motion that it is impossible for the harness and box chains to get out of time with each other. This is a feature of all looms of this class.

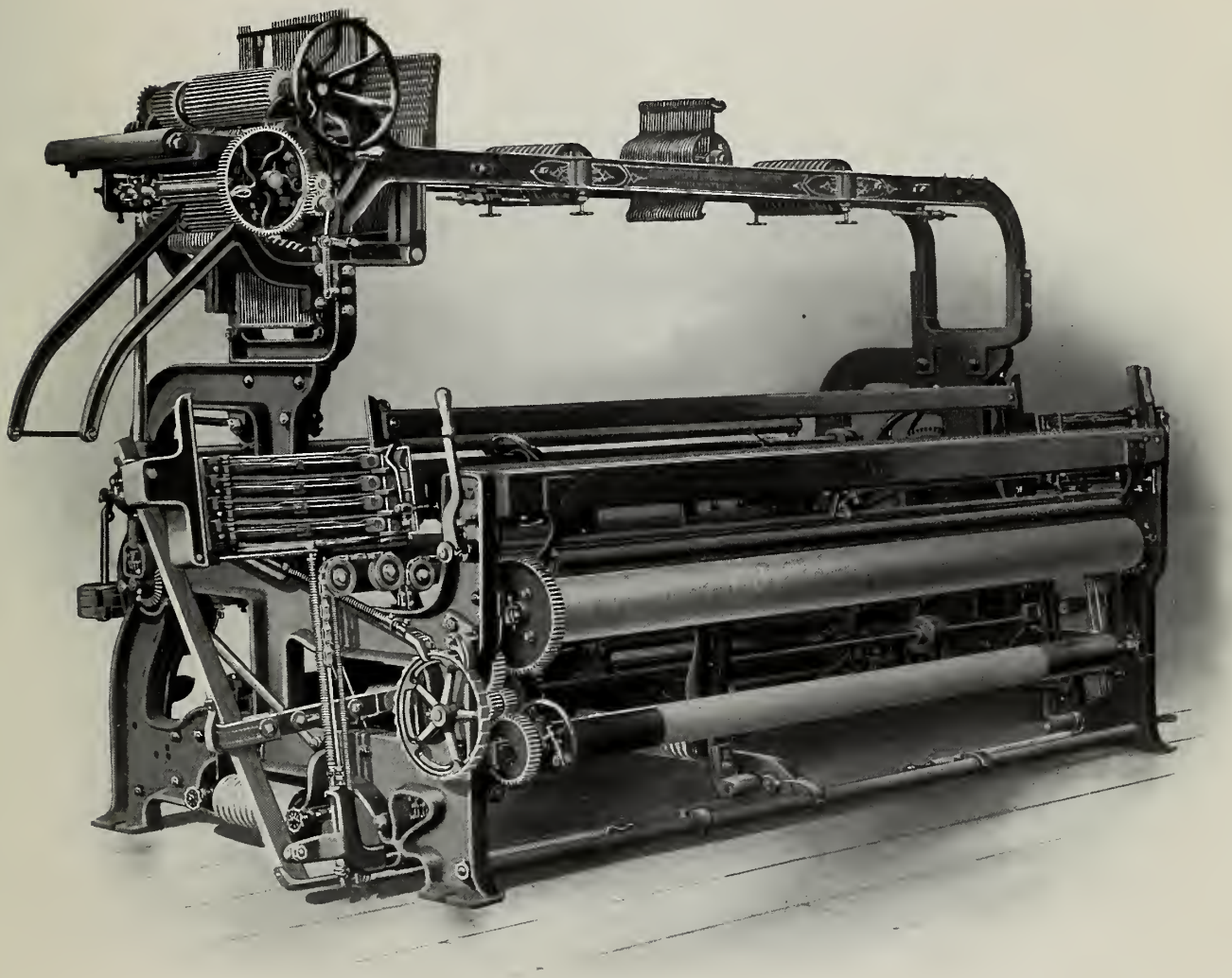
The drive is by face friction pulley on a cross shaft geared to the bottom shaft, with the head driven by an upright shaft from the crank shaft. When desired, this loom is equipped with motor drive. The pulley shaft is journalled in a swinging pulley frame which permits a variation in speed through change pinions. The let-off is by steel band friction, with spindles and weights. The loom takes a double beam stand and fittings for single or double beam.

SIZE OF PULLEY—10 inches or 12 inches diameter, 3¾-inch face.

SPEED—To determine the speed of the pulley on a 2 to 1 geared loom, multiply the number of picks desired per minute by 2.17. One hundred picks per minute would require 217 revolutions of the pulley.

Extras

Multiplier for box chain. Selvage operated from box motion levers. Fittings for double beam work.



INTERMEDIATE WORSTED LOOM

Heavy Gem Loom

IN this loom are combined the high speed of the dress goods loom and the substantial qualities of the Intermediate worsted frame.

It is essentially a dress goods loom, having a light and fast running Gem harness motion, but in combination with an Intermediate frame it is capable of accommodating a line of weaves in the worsted class that are not adapted to the regular dress goods loom. It is designed for certain fabrics that are on the border line between the light worsteds and the worsted dress goods, and while somewhat limited in its scope, it is of high efficiency in its special field. We do not build this loom above 72 inches between swords, and it is not intended for goods requiring over 20 harness capacity.

The loom has usually a single warp beam, with rope friction let-off, regulated by sliding weights on horizontal levers under the beam. The driving pulley, which is face friction, is on the crank shaft, and the driving gears are two to one. This loom may be equipped with motor drive. The take-up is the positive and conditional ratchet ring or positive worm, with ten change gears. There is a filling stop motion connected with brake, a selvage motion, and multiplier on box motion.

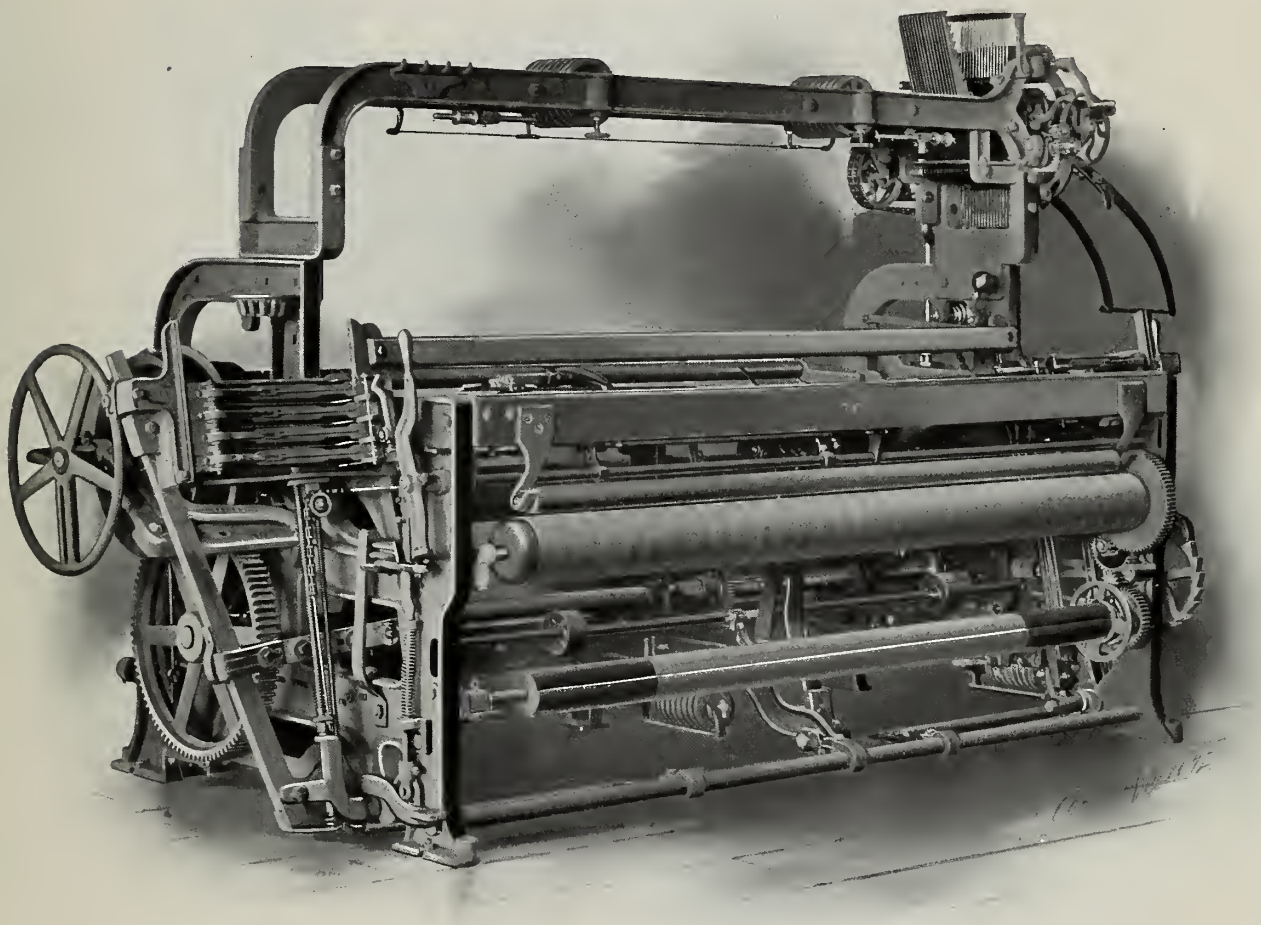
There are certain fabrics that are best woven on a loom of substantial frame combined with a light and fast running harness motion. The Heavy Gem Loom is specially designed for this class of goods and accommodates itself to a line of heavy dress goods of narrow or medium width, but for extra wide goods, the Intermediate Worsted Loom is recommended as described on the preceding page.

The illustration shows a loom 72 inches between swords, 16 harness, 4 x 4 box. Other combinations of drop boxes may be had. We also build this loom with a plain lay.

PULLEY—16-inch diameter, 3-inch face.

Extras

Cross drive. Double beam stands for single or double beam.



HEAVY GEM LOOM

Cassimere or Woolen Loom

FANCY FLANNEL AND BLANKET LOOM

THIS is our standard loom for weaving cassimeres and other woolen fabrics, including fancy flannels and blankets. Its essential difference from looms in the worsted class is more marked than appears in the illustration, the same principles of operation being retained in the cassimere loom, but under such modifications of design and construction as are necessary to meet the special requirements of this class of goods.

A feature of the loom is its relatively slow harness motion, which is of great advantage in handling the more tender woolen yarns with the open shed. It is built in 12, 20 or 25 harness capacity, with head motion driven from the crank shaft.

While heavy and substantial in all its parts, it is somewhat simpler in construction than looms in the worsted class, usually having single beam stands and either the positive or conditional take-up with graduator. The conditional take-up sometimes preferred to the positive may be seen on page 19.

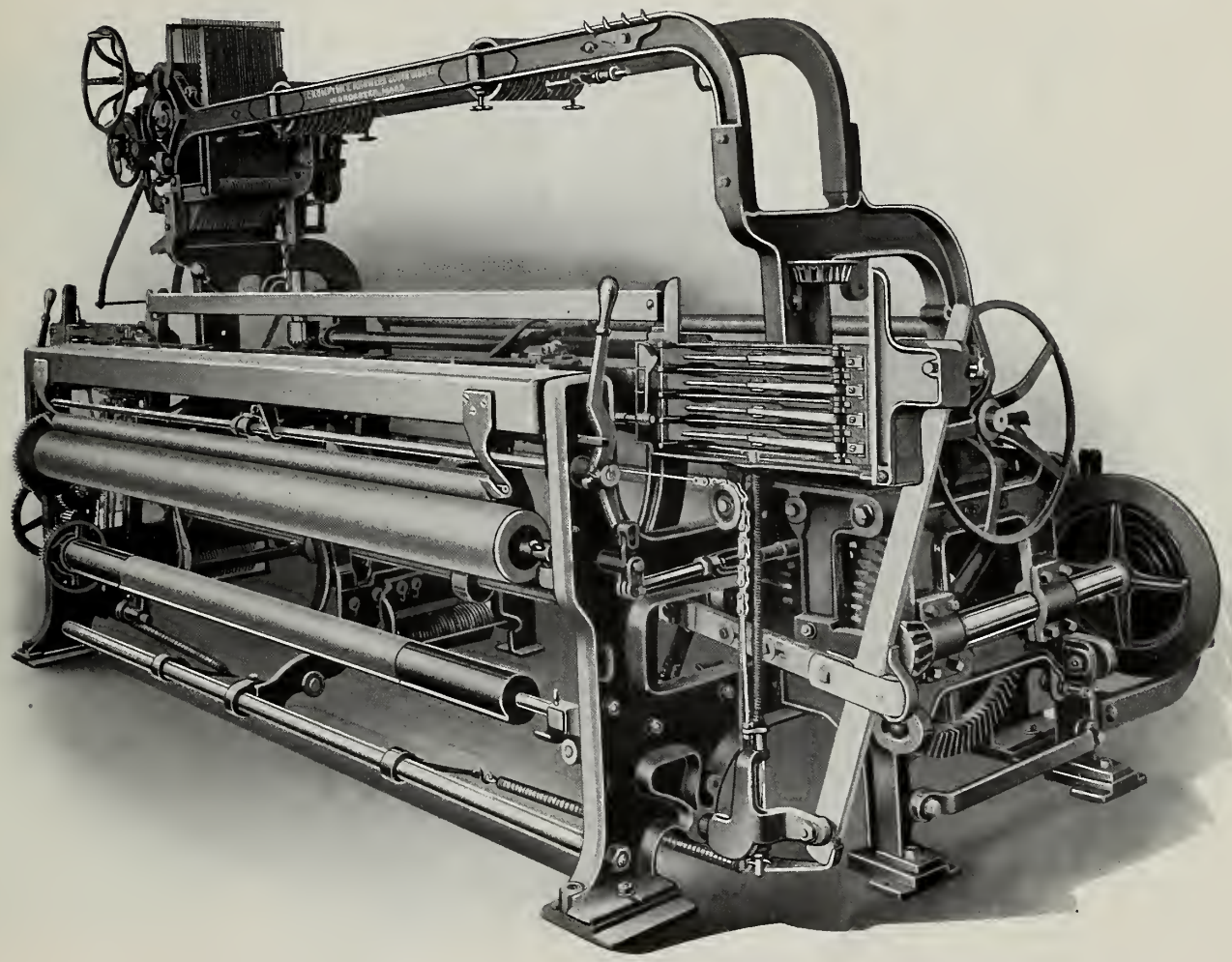
The illustration shows a loom 92 inches between swords, 25 harness, and 4 x 4 boxes. It is also built with 3 x 3 boxes and may be had in a variety of widths.

SIZE OF PULLEY—12-inch or 14-inch diameter, 3¾-inch face.

SPEED—To determine the speed of the pulley on a 2 to 1 geared loom, multiply the number of picks desired per minute by 2.17. One hundred picks per minute would require 217 revolutions of the pulley.

Extras

Positive and conditional take-up. Double beam fittings. Multiplier for box motion. Double chain border attachment for blanket loom.



CASSIMERE OR WOOLEN LOOM

Woolen Paper Felt Loom

THIS loom is specially designed to meet all the requirements of heavy felt manufacture. Following the general principles already described with reference to the fancy worsted looms, it embodies the most substantial construction throughout. The frame is extra heavy with double back girts, several cross centers with shaft bearings on each, and arch braces at frequent intervals. Looms of extra width have several crank wrists and center lay swords. The harness vibrators and jacks are double thick and made of steel.

In the construction of its take-up this loom differs somewhat from the worsted looms, having a positive take-up with pipe rolls driven from the bottom shaft, and usually no lower roll, the woven fabric falling to the floor from the take-up rolls.

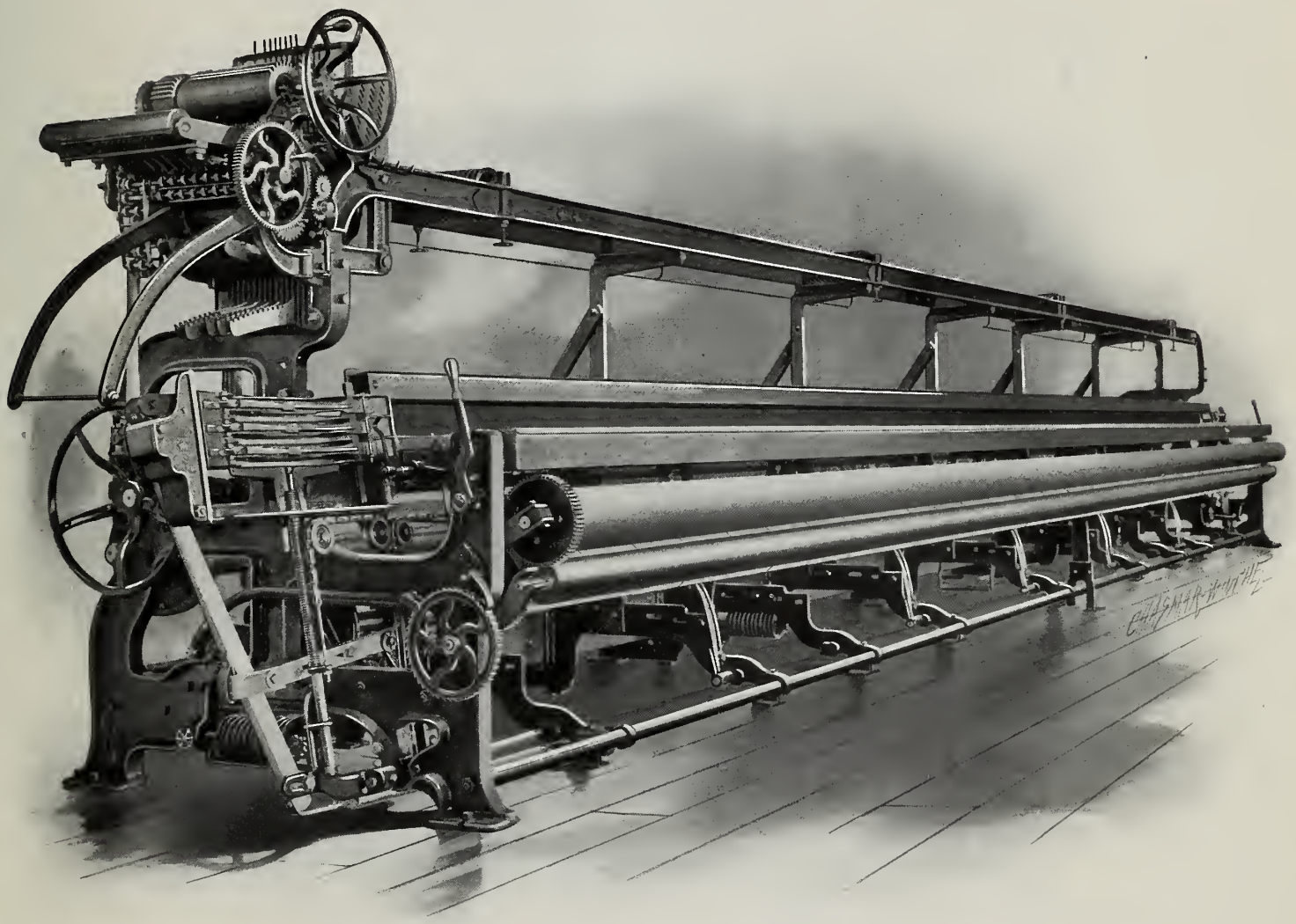
Special interest attaches to the loom shown in the illustration, on account of its extreme width. It is one of the widest looms built for sending a fly shuttle across the lay, being 382 inches between swords. A heavier loom of special construction is built up to 480 inches in width.

Looms of this great width are used for weaving seamless tubes in the direction of the length of the warp. The woven fabric is cut off in proper widths to make endless carriers used in the manufacture of certain kinds of paper. The loom is usually built with 12 harnesses, 3 x 3 boxes, and in different widths.

There is a center bearing or rest for the warp beam and also for the take-up roll, on looms above 200 inches between swords.

SIZE OF PULLEY—18-inch diameter, 5-inch face.

SPEED—To determine the speed of the pulley on an equal geared loom, multiply the number of picks desired per minute by 3.23. Fifty picks per minute would require 162 revolutions of the driving pulley.



WOOLEN PAPER FELT LOOM

Cam Flannel and Blanket Loom

THIS broad loom, of substantial construction, is specially adapted for the manufacture of flannels, blankets, and cassimeres of moderate harness requirements.

It is of simple construction—the harness motion consists of side cams and upright jacks, the take-up being conditional, with a combined cloth and take-up roll. The harness cams are readily changed to vary the weave, but as this loom is not built with over eight harness capacity, the Fancy Flannel and Blanket Loom is recommended where a large range of patterns is desired.

On drop box looms, a positive cam box motion or a side plate chain box motion is attached, and for weaving blanket borders or wide patterns, the box chain multiplier is usually considered indispensable, as it effects a great saving of chain.

The vibrators for raising the boxes are operated by cylinders and vibrator gears in the same manner as when attached to the Knowles head motion, and the usual combinations of drop boxes may be operated in this way with equal facility.

By means of a disconnecting mechanism, either the box motion cylinders or the box chain shaft may be independently operated by hand.

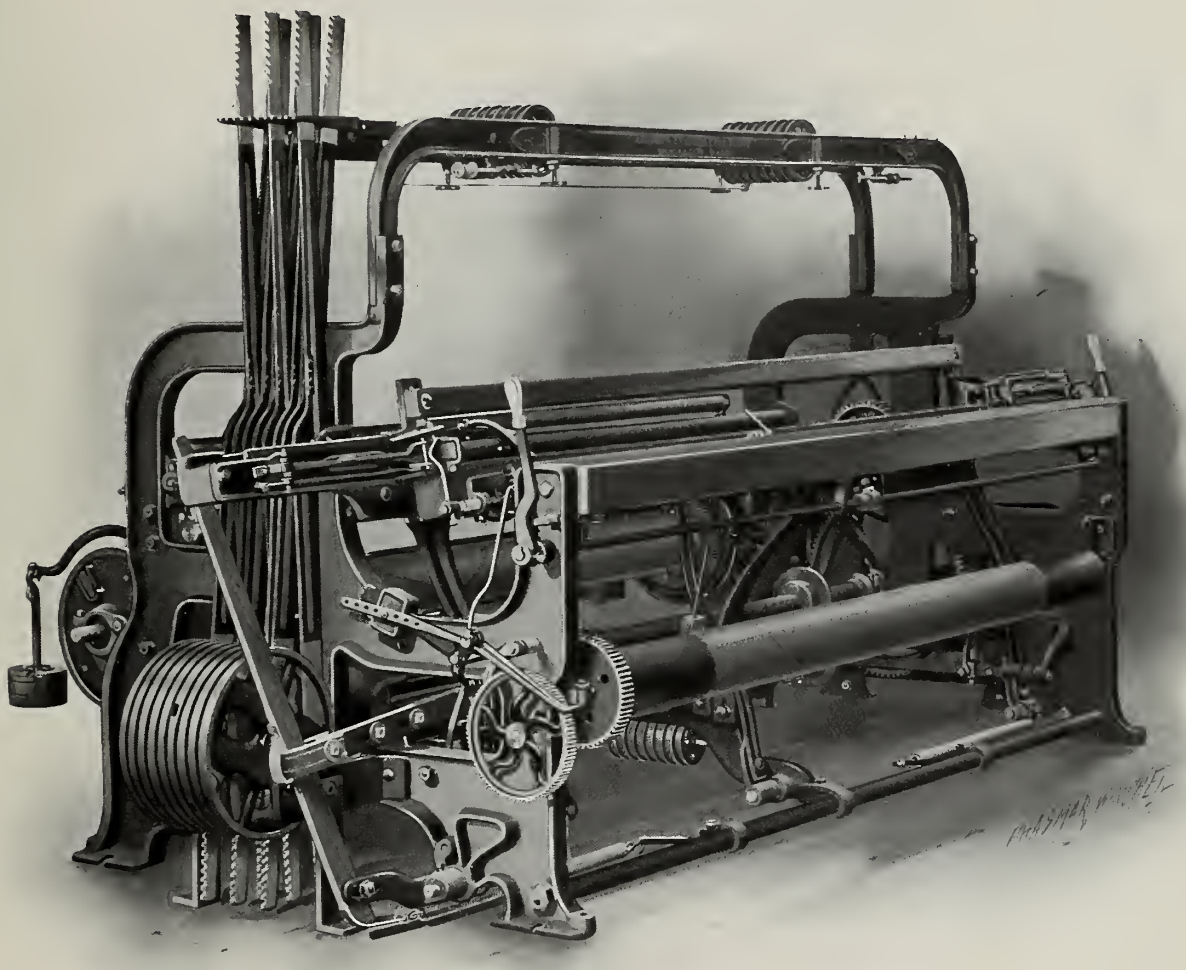
This loom has the regular cross drive with solid pulley frame, or motor drive, steel band friction let-off for one beam and conditional take-up with graduator. There is a centre filling stop motion and selvage motion. The standard width is 92 inches between swords, but other widths are furnished if desired.

SIZE OF PULLEY—12-inch diameter, 3¾-inch face.

SPEED—To determine the speed of the pulley on a 2 to 1 geared loom, multiply the number of picks desired by 2.17. One hundred picks per minute would require 217 revolutions of the pulley.

Extras

Combined positive and conditional take-up. Double beam and fittings. Chain box motion. Multiplier for box motion. Sliding pick from box chain. Positive cam box motion for 2 x 1 or 2 x 2 boxes.



CAM FLANNEL AND BLANKET LOOM

Satinet and Jean Loom

FOR satinets and jeans, we have a loom of simple construction and moderate cost. This is an end cam loom of 8-harness capacity and usually with a single box at each end, although the loom is also built with 2 x 1 or 2 x 2 boxes and a positive box motion for mixing filling.

The loom is driven from the crank shaft by either face friction pulley or motor. The bearings for the beam shaft are pockets in the loomsides.

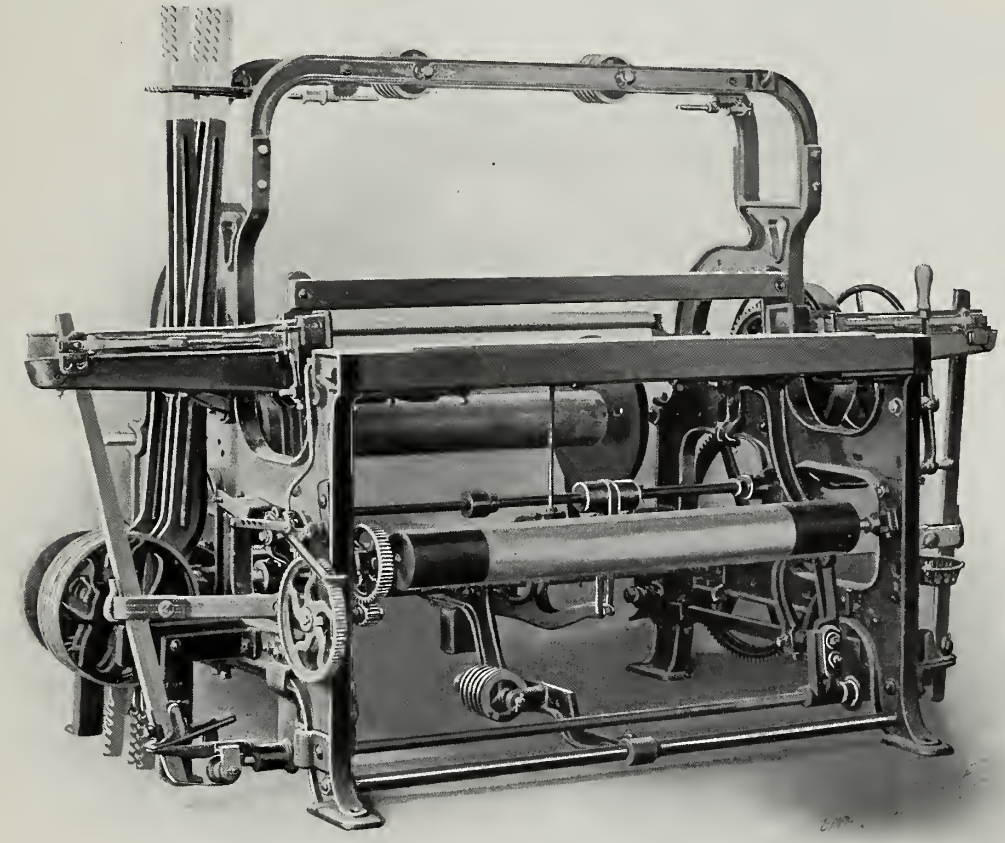
The beam has plain friction heads, friction being applied by rope or steel band attached to levers with sliding weights. The take-up is conditional with graduator, the woven goods winding up on the take-up roll. The selvage motion is driven from the bottom shaft. As here shown the loom is reduced to its simplest form, but there are several attachments and modifications which may be applied.

A fancy satinet loom is built with a 12-harness chain head, combined with a plain lay if desired, but also built with 2 x 2 boxes. This loom is shown on page 23.

SIZE OF PULLEY—14-inch diameter, 2¾-inch face.

Extras

Positive cam box motion to mix filling with 2 x 1 or 2 x 2 boxes. Positive ratchet ring take-up to wind cloth on swinging roll. Positive ratchet ring take-up to wind cloth on lower roll. Filling stop motion. Brake connected with stop motion.



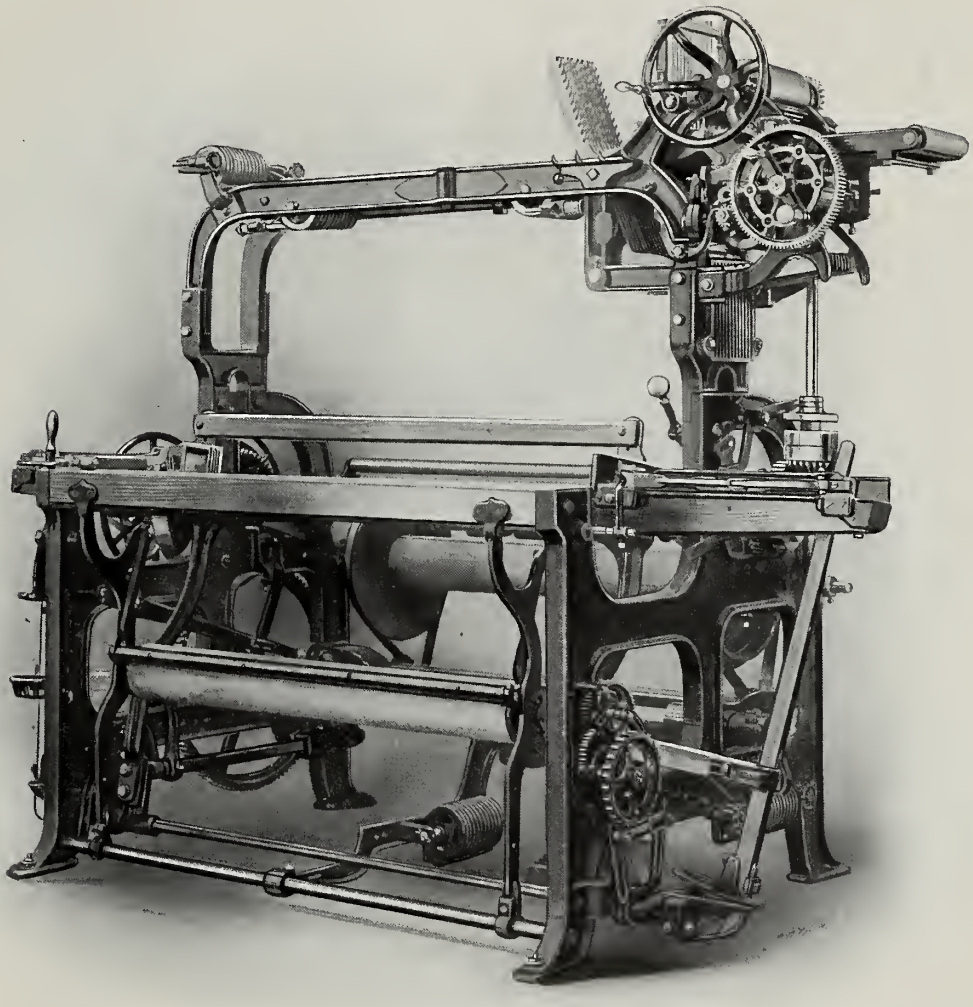
SATINET AND JEAN LOOM

Fancy Satinet Loom

TO meet the demand for a fancy satinet loom, a Knowles 12 harness head motion is applied to the satinet frame. This construction affords all the advantages of a chain harness motion, while still retaining in other respects the more simple construction required for satinet weaving.

The illustration shows a 12 harness 1 x 1 box loom, with a positive ratchet ring take-up combined with a swinging cloth roll over the take-up roll.

A full fancy satinet loom is obtained by applying drop boxes operated from the head in connection with the harness chain cylinders, the combinations for this type being 2 x 1 or 2 x 2. Other details of this loom are described and illustrated on page 20.



FANCY SATINET LOOM

Gem Dress Goods Loom

THE Gem Dress Goods Loom embodies the essential features of the broad worsted looms, with a lighter frame and operating parts especially designed to meet the requirements of the dress goods manufacturer. This loom has the Knowles Gem head with harness and box chains combined. Included with the drop box loom is a box chain multiplier, which effects a large saving of chain in the longer patterns. The drive is by face friction pulley on the crank shaft or motor drive. The let-off is by rope friction with bearings for beam shaft in pockets in the loom sides. Double beam stands may also be applied if desired. The take-up is positive, with a swinging cloth roll over the take-up roll. There is a brake and a center filling stop motion.

The loom is usually built as a full fancy loom with from 16 to 25 harness capacity and 4 x 4 boxes. It is built with other combinations of boxes, and in a variety of widths suited to dress goods work, but it is not intended for goods requiring a loom more than 72 inches between swords.

WITH PLAIN LAY

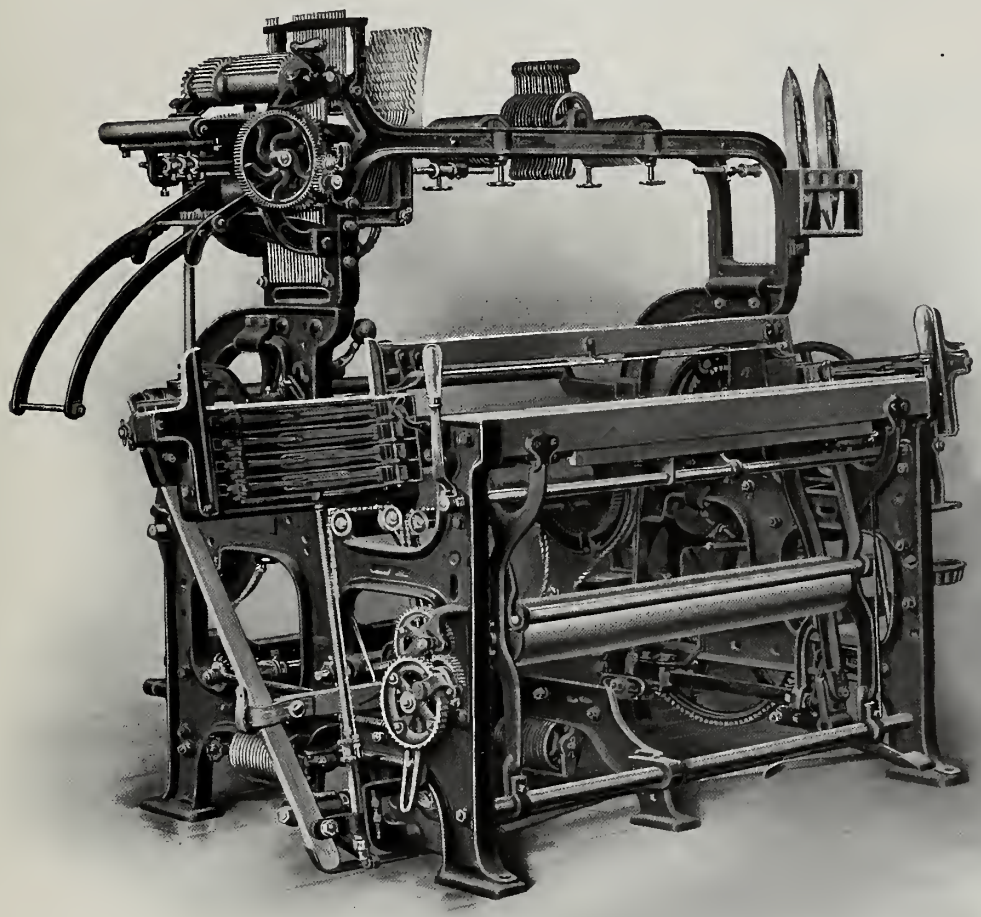
Dress goods in one color are woven on a loom having the same general construction as the full fancy Gem Loom except that a plain lay is substituted for drop boxes.

The provision for double beams is a departure from the usual requirements for dress goods work, and our standard loom of this class has only a single beam with rope friction let-off. A leno motion may be applied to this loom, with a supplementary let-off arrangement, consisting of upper beam stands, beams and whip rolls.

These and other modifications, such as cross drive, lower roll take-up, and a combination with a jacquard harness motion, make this loom well suited to a wide variety of dress goods.

Extras

Cross drive. Upper beam stands and beams. Jacquard driving mechanism. Double beam stands. Leno motion complete with slackeners. Lower roll take-up. Steel band let-off.



GEM DRESS GOODS LOOM

Dobby Dress Goods Loom

THE Dobby Dress Goods Loom is well known on account of its adaptability to the requirements of dress goods manufacture.

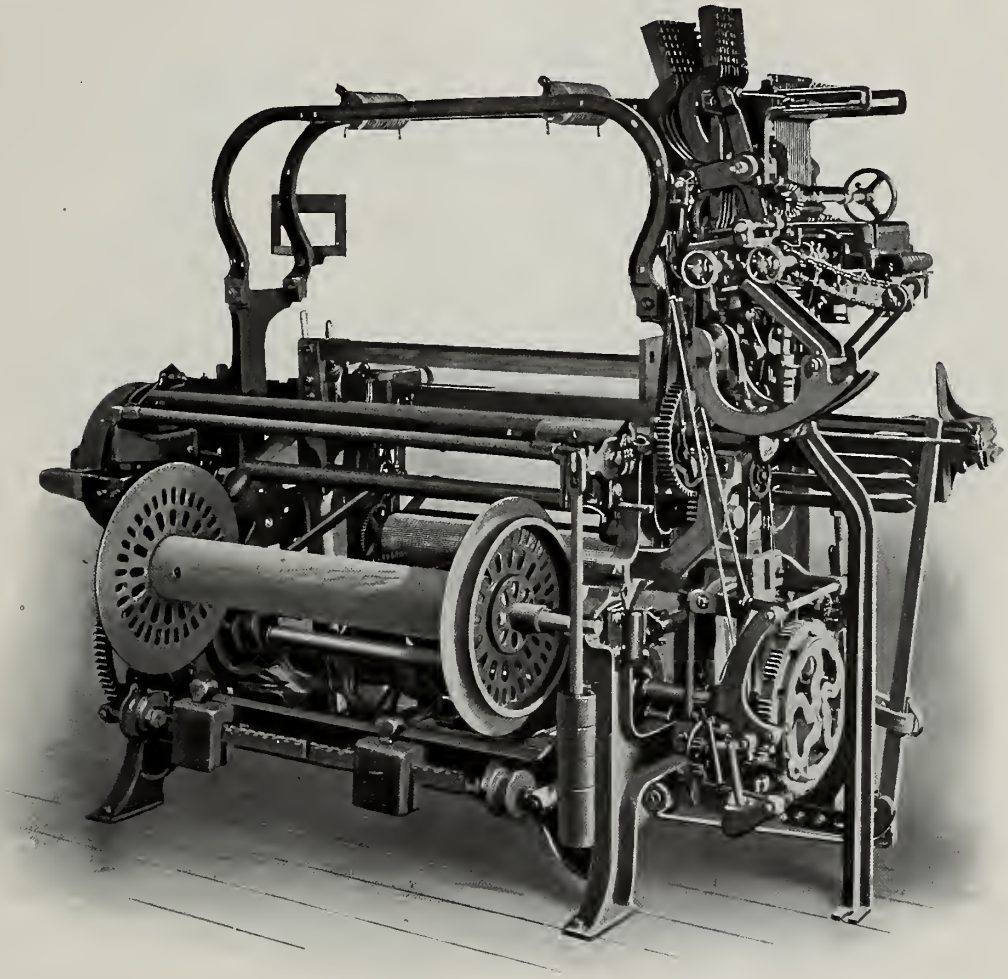
From the two-cam harness construction shown on page 43, this loom extends into a variety of modifications, with a Crompton dobby harness motion substituted for under cams and with various combinations of drop boxes. For one color work the loom has a plain lay and the box motion and multiplier are omitted, but the full fancy loom follows the general construction shown, with either single or double index dobby and with harness, box and multiplier chains combined.

Various attachments may also be applied either for novel effects in weaving or for the saving of chain and other parts. Among these are leno and lappet motions, two weave, double cylinder and several types of multipliers.

The illustration shows a 16 harness loom with single index dobby, 4 x 1 box motion, rope friction let-off for single beam and positive ratchet take-up with rising cloth roll. Direct pull down springs for harness are included. There is also a filling stop motion.

Extras

Spring jacks. Dobby chain multiplier. Two or three or four weave motion. Leno motion. Upper beam stands and beams.



DOBBY DRESS GOODS LOOM

Gem Silk Loom

THE standard loom for broad silk goods, especially in the heavier grades, is the Gem Silk Loom. This loom is peculiarly adapted to meet the varied requirements of silk manufacture on account of its substantial character, being built with the same style harness and box motions as are found in the Gem Dress Goods Loom. An important feature of all looms of this class is the combining of harness and box chains so that they cannot get out of time with each other, and the harness motion is positive in both directions.

This loom has a rope friction let-off, and positive take-up with lower cloth roll. The drive is by face friction pulley on the crank shaft. There is a multiplier on the box chain, a filling stop motion, and a swinging reed frame held by springs, the lay being equipped with a dwell motion if desired.

The illustration shows a loom 48 inches between swords, 25 harness and 4 x 4 boxes. The harness capacity varies from 16 to 30 shafts and other combinations of drop boxes may be applied. The loom is also built for jacquard work with the harness motion omitted. The loom may be built with 2 x 2 or 4 x 4 drop box lay or 2 x 1; 4 x 1; or 6 x 1 lays.

WITH PLAIN LAY

This loom combines the advantages of the Knowles positive harness motion, with a plain lay for one color work, and in every particular is built to reach a very high standard of excellence.

On account of its substantial construction this loom is well suited to heavy silk dress goods in extreme widths.

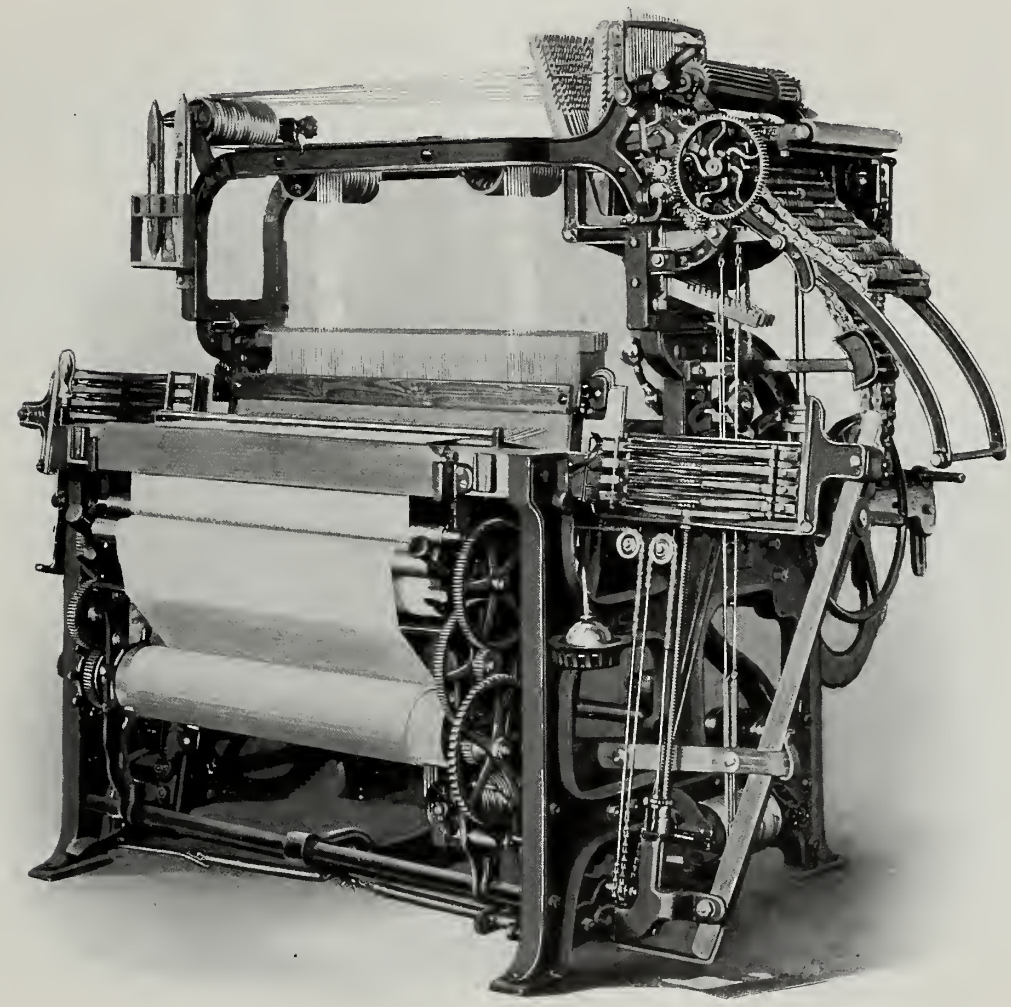
Any of the usual combinations of drop boxes may be applied, and we are frequently called upon to supply the drop box mechanism to plain looms in the mills.

In ordering new looms of this type, the possibility of requiring the drop box equipment later should be considered, as it is less costly to anticipate such a change by building the loom with an extended head frame designed to take the box cylinders when required.

This loom is subject to all the modifications already described with reference to the full fancy Gem Silk Loom. One of these modifications, shown on page 31, is an upright shaft geared to the take-up mechanism to enable the weaver to operate take-up by hand.

Extras

Motor drive. Upright shaft with hand wheel to operate take-up.



GEM SILK LOOM

Dobby Silk Loom

IN the construction of the Dobby Silk Loom, the most careful attention to details has developed a type of loom that is recognized as standard for broad silk weaving. From the plain lay loom as a base, this loom extends into a variety of modifications that make it exceptionally adaptable to all classes of plain and fancy silk goods. The base construction is a combination of the Knowles plain silk loom with the well known Providence type of dobby in any capacity from 6 to 30 harness.

Drop box looms include a multiplier, in which harness, box and multiplier chains are arranged in train, so that whether moving forward or backward the chains will always remain in time with each other. This multiplying feature has a variety of modifications extending into both harness and box chains, including the two-weave motion and reversing dobby chain. The loom shown is 48 inches between lay swords, and is equipped with 20 harness double index dobby, 2 x 2 boxes, rope friction let-off and positive take-up with lower cloth roll. Other combinations of boxes either 2 x 1; 4 x 1; 6 x 1; or 4 x 4 may be had if desired. The large take-up drum is considered indispensable, and the upright shaft and wheel to operate take-up by hand are frequently called for. This loom without a dobby forms the basis of the Jacquard Silk Loom shown on page 33.

WITH PLAIN LAY

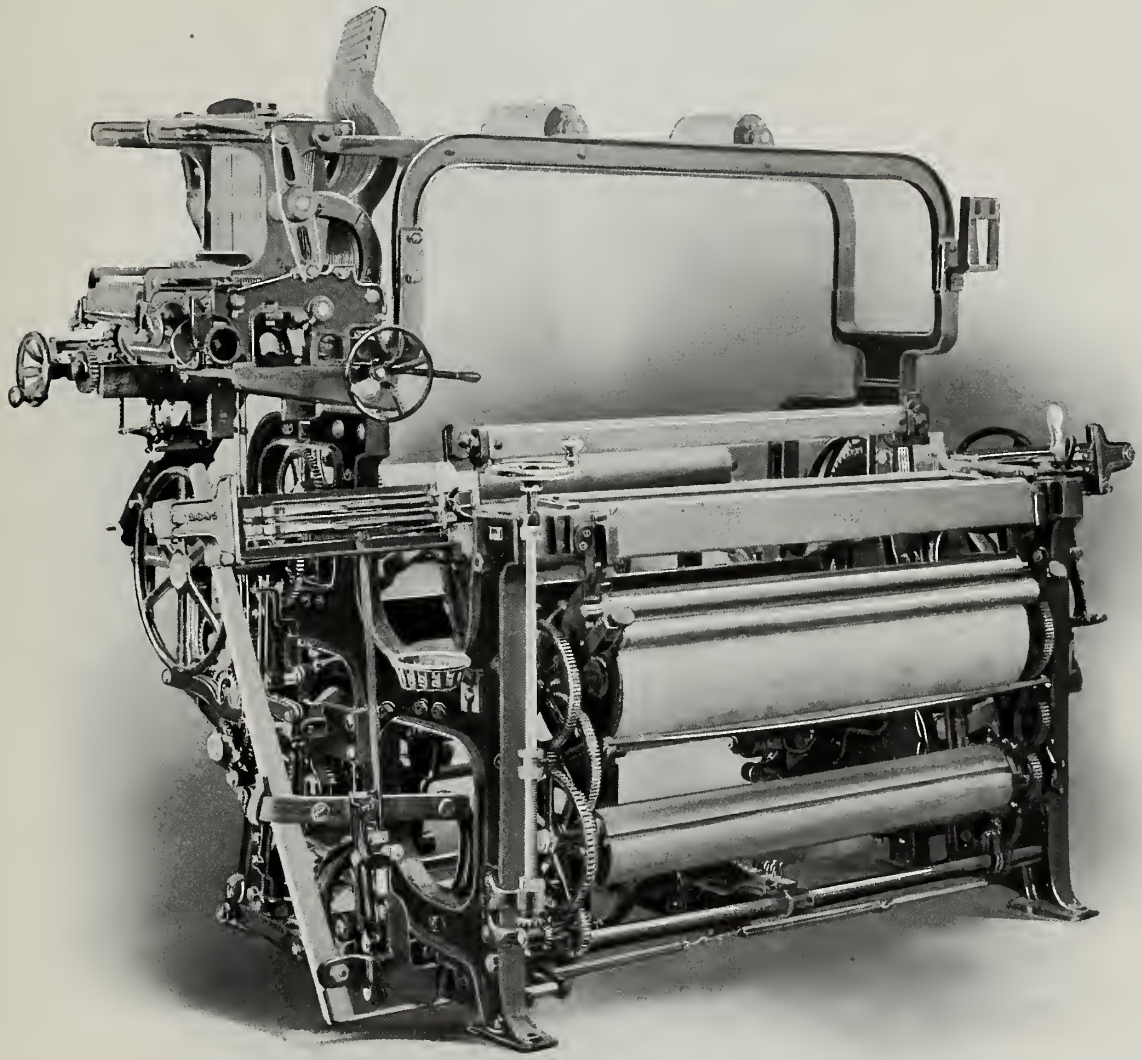
Taffetas, grosgrains, twills and other standard broad silks are woven on the Dobby Silk Loom. This loom has been recently improved in many important respects, and special attention is called to the simplicity of the dobby driving mechanism and other working parts. This loom is designed for one color work, having a plain lay with wood or iron lay ends as desired.

There is a swinging reed frame held by springs, also a filling stop motion if desired.

Extras

Motor drive. Spring jacks. Selvage motion. Two weave. Reverse dobby chain. Mechanism to operate take-up by hand. Large take-up drum. Felt roller with springs.

Uprights and timbers for jacquard. Jacquard driving mechanism. Cone harness motion for taffeta weaving.



DOBBY SILK LOOM

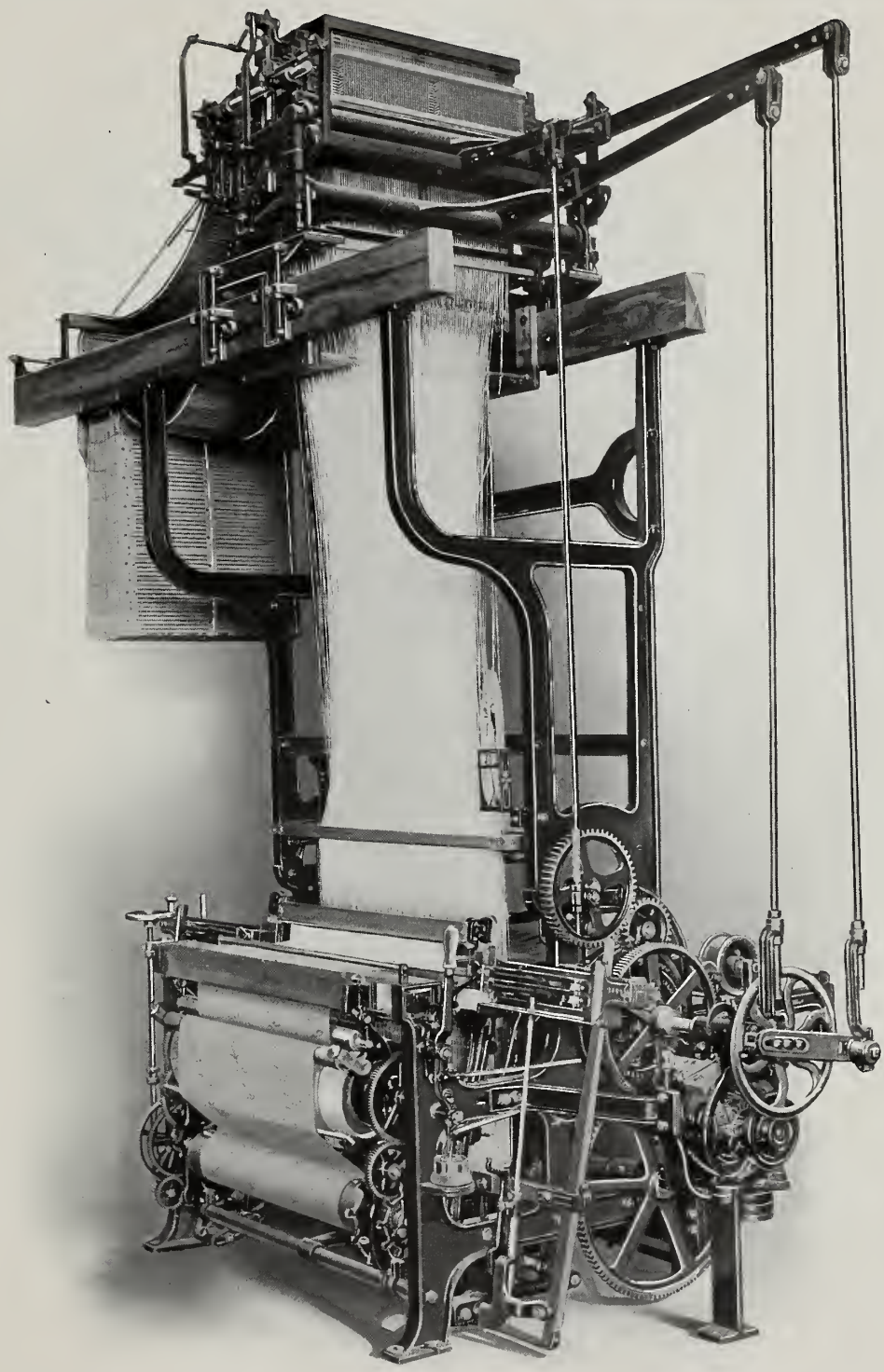
Jacquard Silk Loom

THE demand for jacquard machinery has been so great that we have given special attention to this department of our business, and are able to offer a comprehensive line of jacquard looms, developed to a very high standard in every respect.

All types of jacquards built by us are complete in themselves, and can readily be applied to looms of other makes, but they are exceptionally efficient when used in combination with a Crompton & Knowles loom designed especially for jacquard work. A self-contained jacquard loom has heavy iron uprights bolted to the loomsides and gauntry timbers for supporting the jacquard machine. Suitable driving mechanism is provided to insure an easy motion at high speed, the loom shown being fitted with a double lever independent cylinder jacquard of the latest type, with lifter levers operated from the crank shaft and cylinder motion operated by gear and stud.

Several novel features are to be noted, among which are the large take-up drum, upright shaft to operate take-up by hand, and the motor drive. The let-off is by rope friction with friction weights and counter-weights, and the take-up is the Knowles positive with stretcher bar. The chain box motion is provided with jacquard indicator motion.

Numerous modifications are offered, including other combinations of drop boxes.

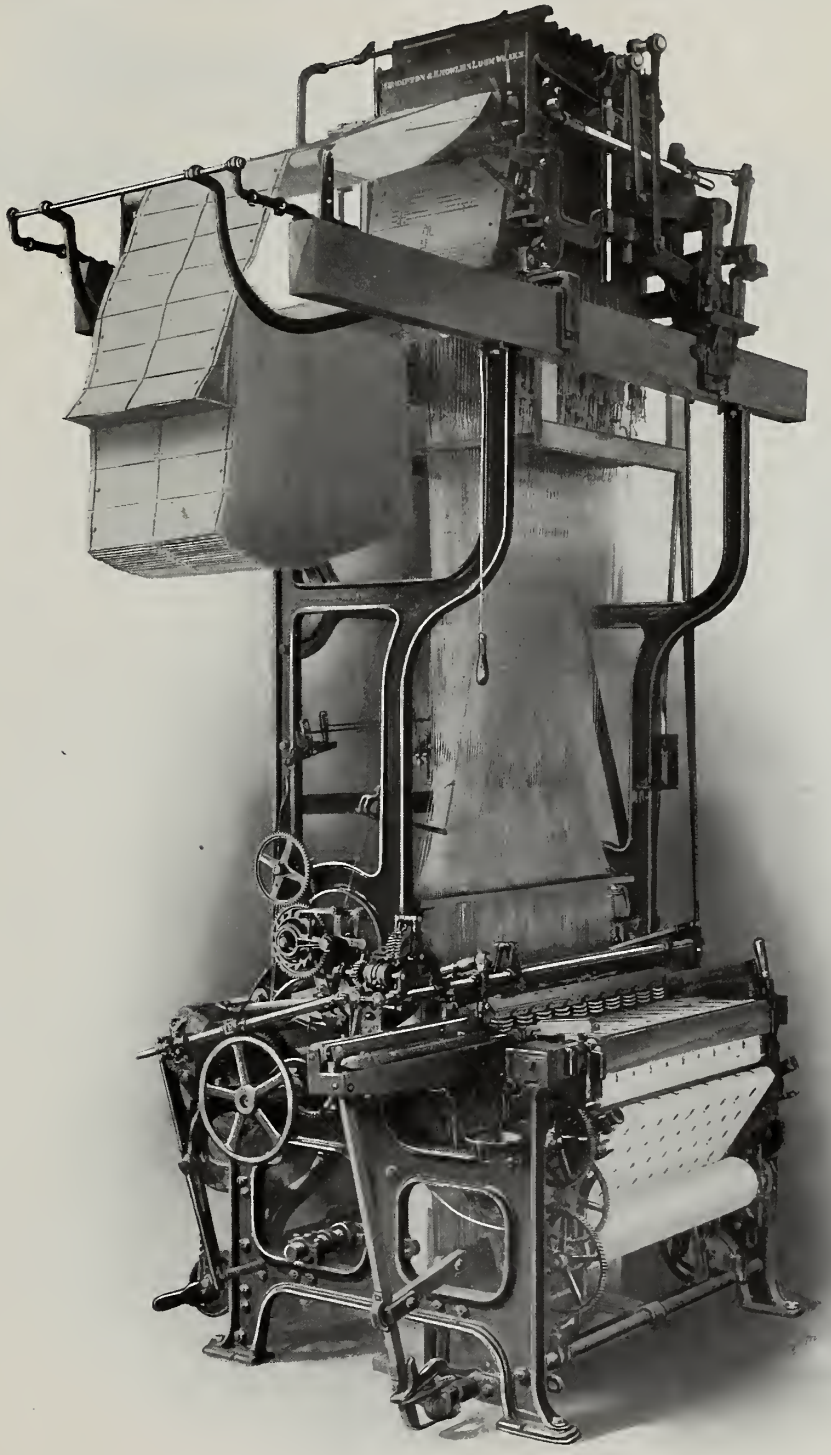


JACQUARD SILK LOOM

Swivel Loom

MANUFACTURERS of fancy effects and novelties will be interested in the recently improved Jacquard Swivel Loom shown opposite. The swivel attachment consists primarily of several rows of small shuttles held in a rail over the lay and automatically introduced into the warps at a desired point. The shuttles carry yarns of different colors and weave a surface figure on a plain ground, each row being independently indicated by the harness mechanism.

The operating mechanism maintains perfect control over the shuttle rail in its transverse motion, so that a variety of effects is permissible, including separate figures or continuous diagonal stripes. The swivel motion is built with one, two or three rows of shuttles and may be applied to full fancy looms with any of the usual combinations of drop boxes. The figure is firmly woven into the goods and will not pull out.

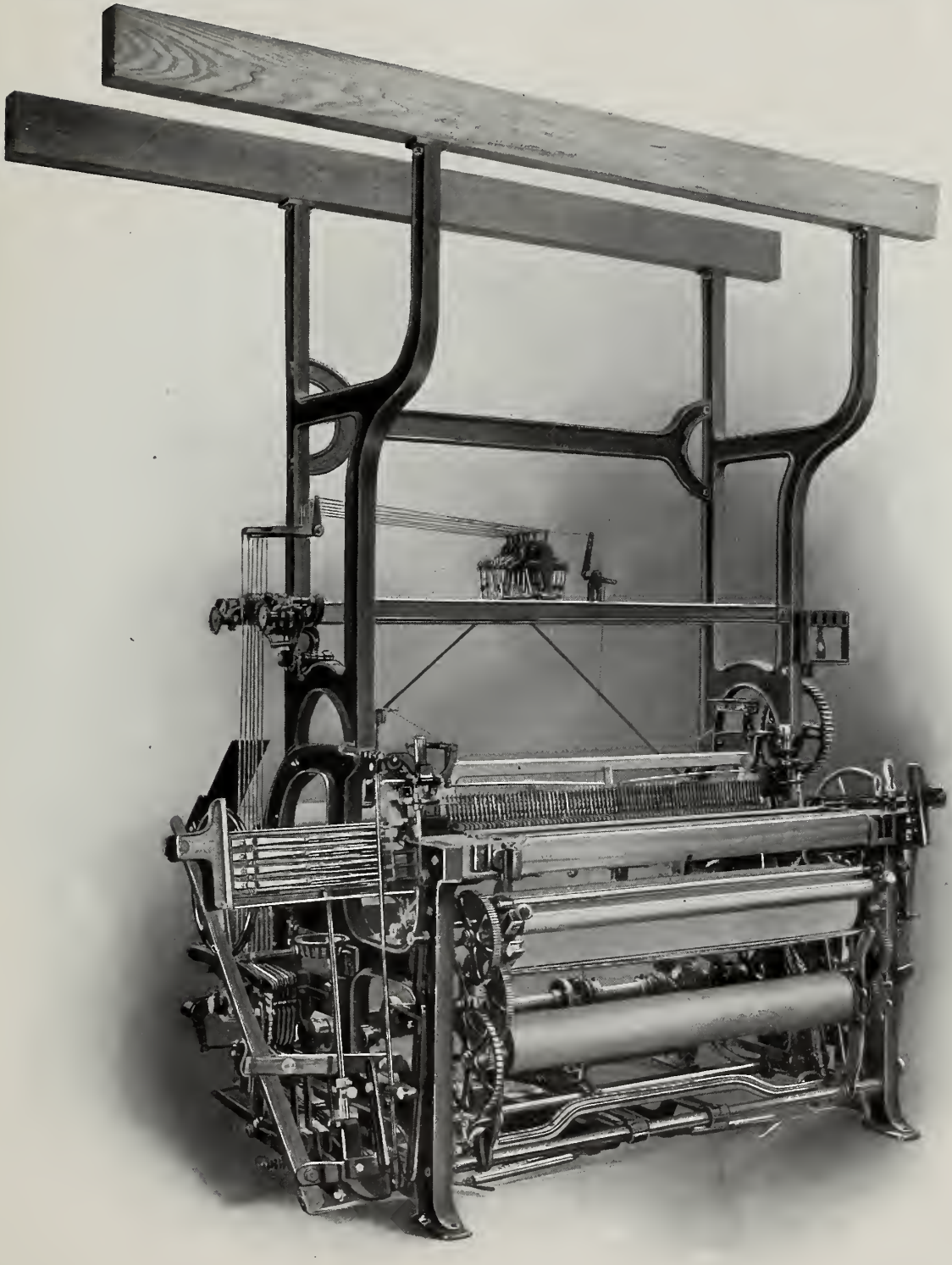


SWIVEL LOOM

Embroidery Loom

ONE of the most advanced types of looms that we build is the Embroidery Loom. In connection with a jacquard, the embroidery motion is designed to weave a raised figure of many desired patterns, large or small. It consists of a batten carrying a row of very small shuttles set so closely together that they can be entered between the warps at a desired point. This makes possible the production of continuous embroidery effects covering practically the entire surface of the goods. The batten is under the control of operating mechanism indicated from the harness, and has a transverse motion which further facilitates its operation. The embroidery motion is complete in itself, and may be employed in connection with any fancy harness silk loom, although primarily designed for jacquard work.

Included with the motion for 30-inch cloth are 60 shuttles and fittings, 60 quills, 60 fingers and levers, bar, cams and connections complete with side plate operating mechanism.



EMBROIDERY LOOM

Plush and Velvet Loom

THIS loom is of heavy construction and especially designed for the weaving of Plush and Velvet fabrics. The loom is built in several different widths, but usually 69⅜″ between swords with 20 harness capacity and 2 x 2 box. Some of the looms are built with 2 x 4 box.

In weaving the goods two sheds are formed through which two shuttles are thrown at the same time, thus producing a double fabric. The loom is built with a special iron breast beam on which is a cutting arrangement which splits the goods as they are woven.

Standard Velvet being woven in three widths and split on the loom, six pieces are produced at the same time.

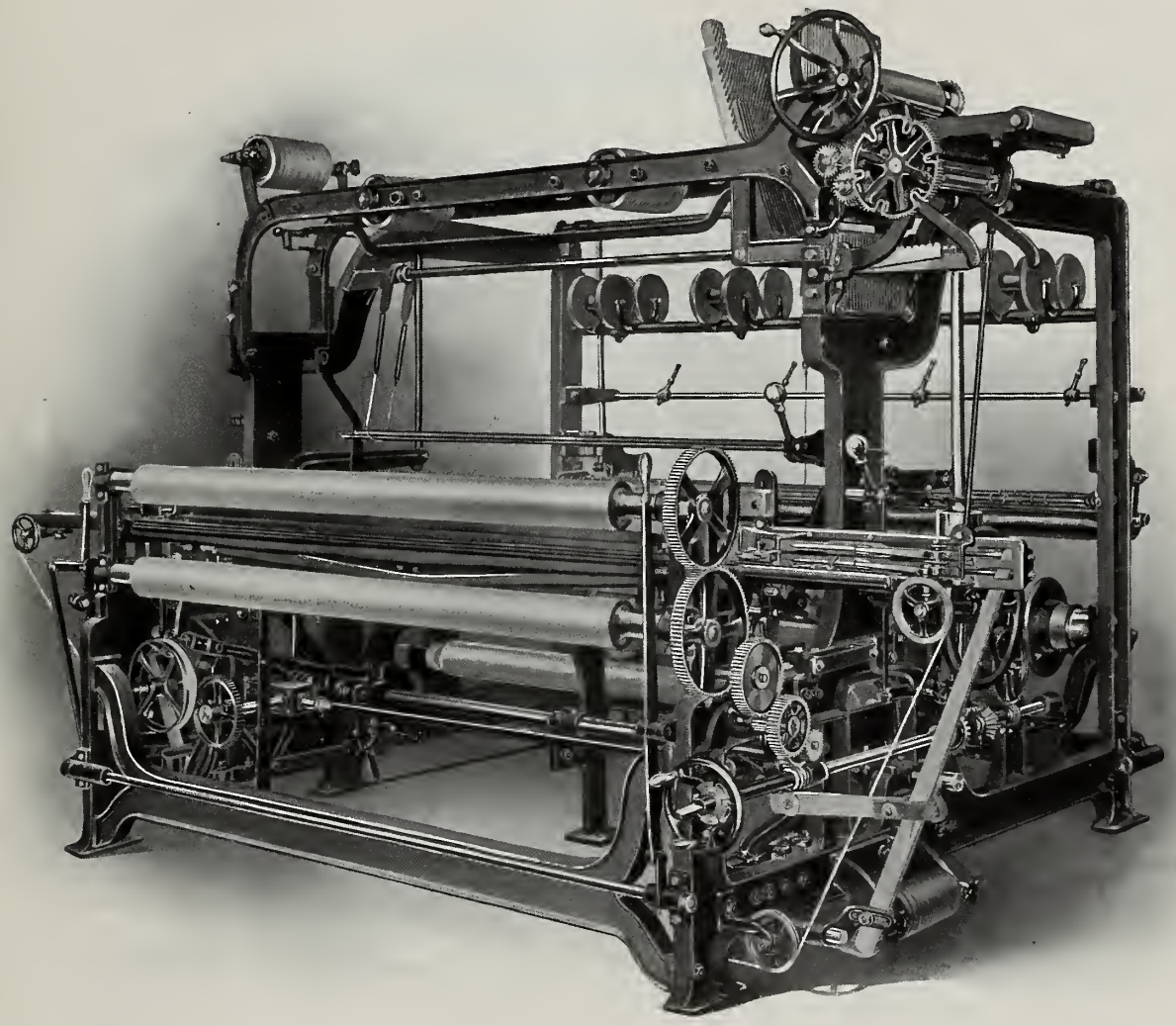
An end cam harness motion can be used if desired, instead of the head motion, and this is sometimes used in the weaving of Plush fabrics.

The looms are driven by cross or parallel drive geared to the crank shaft by face friction pulley or motor.

The let-off is controlled by a lever or bar and weights with chain friction for cotton warp, and positive motion from the head for the pile warp. One pile beam and two warp beams are included, also the selvage spools on rods.

The take-up is the positive worm type with two plaster of Paris rolls set with steel points. An adjustable cutting bar is furnished with this loom with cutters and hones.

The loom is built with either a swing or parallel lay motion.



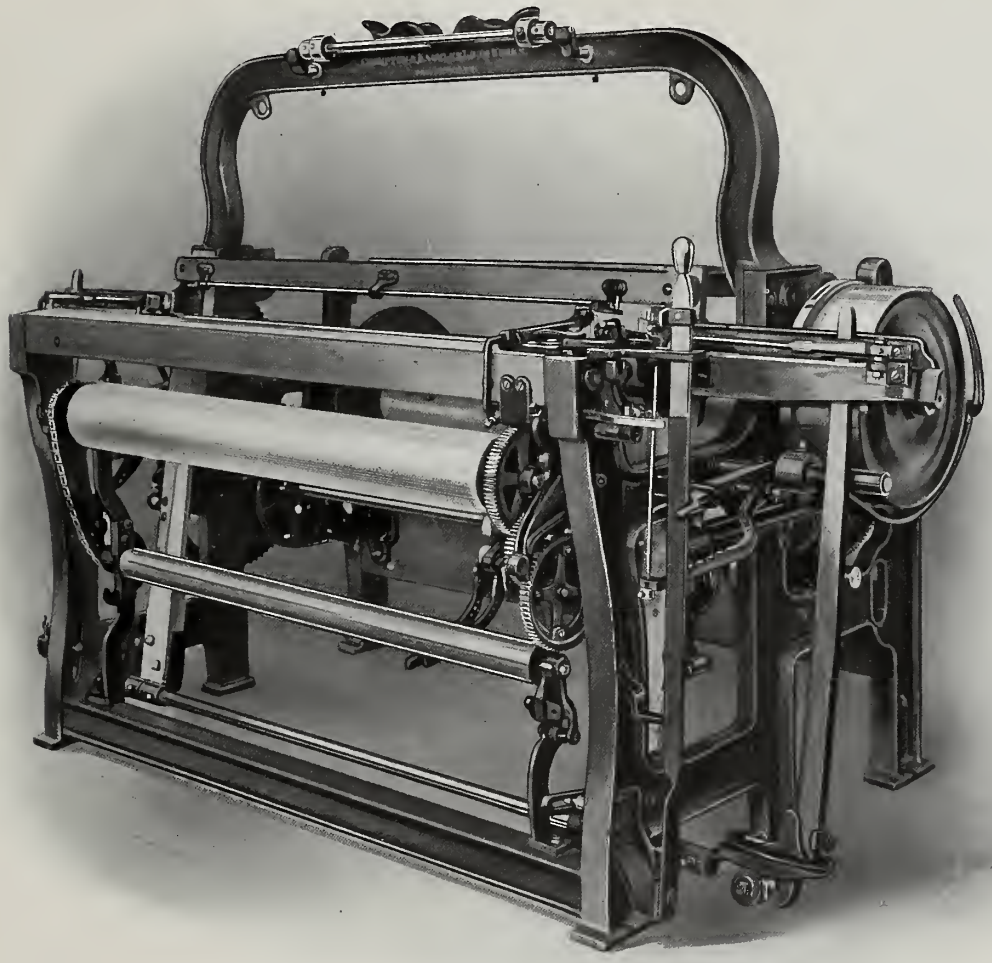
PLUSH AND VELVET LOOM

Cotton Loom

THE economical weaving of print cloths and other plain cottons requires a loom built for high speed, embodying a very simple construction in a strong and rigid frame. The loom shown opposite is particularly well adapted for this class of work, its substantial frame and careful elimination of every unnecessary part insuring a light running machine of the highest practicable speed. In its simplest form, this loom has a two cam and treadle harness motion. This number may be increased to three, four or five harness for more fancy weaving, and the frame is so well proportioned that double arches and dobbies of various harness capacities may be applied. Different types of warp let-off are available; the ratchet friction, compound friction, Brunelle or Bartlett. One and one-half beams are furnished with each loom. The take-up is positive with a lower cloth roll. Three change take-up gears are included. The loom is driven by tight and loose pulleys on the crank shaft. There is a side shipper with brake and a side filling stop motion.

Extras

Friction pulley. Tape selvage. Three, four or five cam harness motion. Centre selvage. Bartlett let-off. Motor drive. Warp stop motion.



COTTON LOOM

Gingham or Fancy Cotton Loom

FANCY cottons of simple weave, in one or more colors, are woven on a loom of the well recognized type shown opposite. In its simplest form, this loom has an underneath cam and treadle harness motion for two shafts and a plain lay. It may also be arranged for three, four or five harness, and the usual combinations of drop boxes are readily applied, either to new looms or to old looms already in the mills.

A special top rigging for the harness may be attached to the arches to take the place of the usual top rollers. This feature is a marked improvement, especially when the maximum number of harnesses is used.

The loom shown has a face friction driving pulley on the crank shaft, rope friction let-off for single beam, positive take-up with cloth roll over the take-up roll, and a 4 x 1 box motion and lay. The box motion is governed by a variable pattern chain.

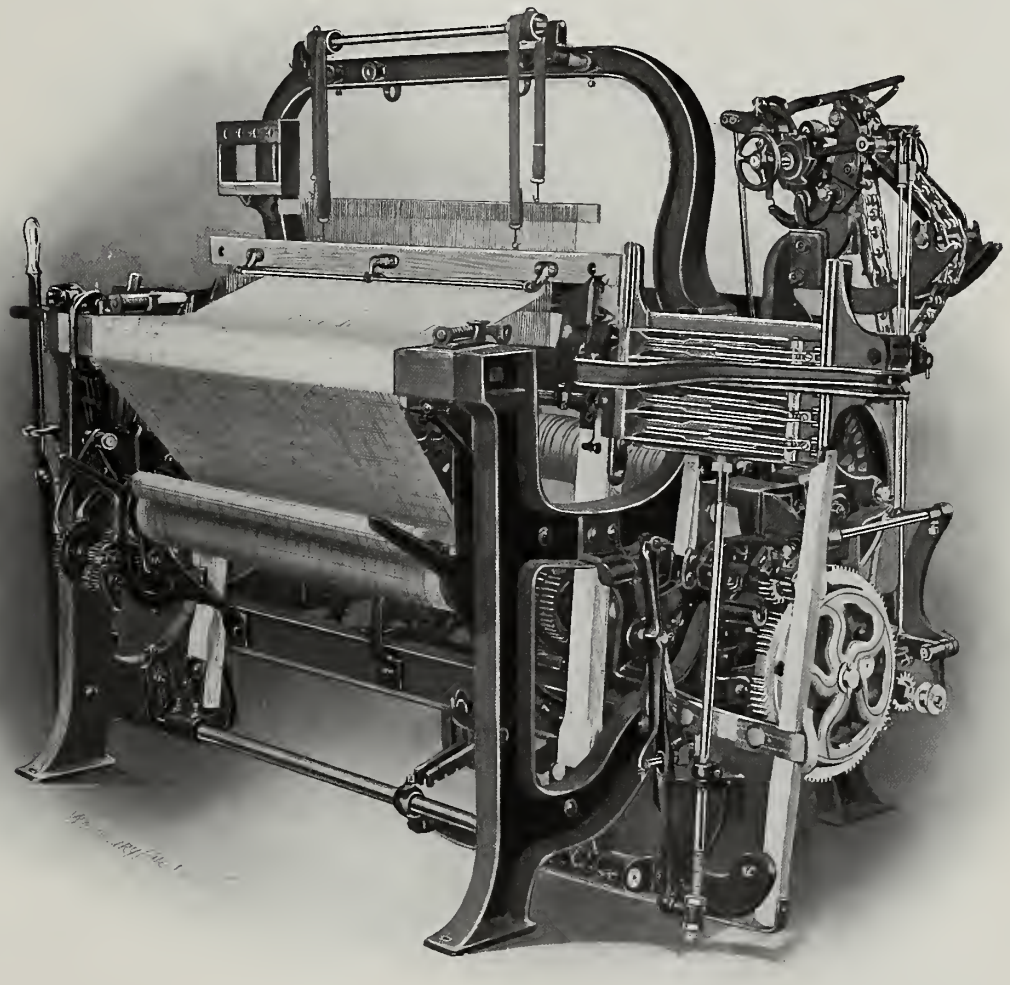
There is a filling stop motion.

Extras

Heavy three-legged loomside. Double arches. Three, four or five leaf cams. Top rigging for harness. Warp stop motion.

AUTOMATIC GINGHAM LOOM

This loom is built with the automatic magazine for weaving two, four or six colors. When the loom is operating, a feeler is in contact with the yarn on the bobbin. When the filling is practically exhausted, the mechanism operates causing the empty bobbin to be ejected and a full bobbin inserted in its place without stopping the loom or losing a pick.



FANCY COTTON OR GINGHAM LOOM

Dobby Cotton Loom

THE loom shown opposite has acquired an enviable reputation in the broad field of fancy cotton weaving for which it was designed. A characteristic feature is the combination of a highly developed dobby with that type of box motion so familiar for many years to the users of fancy cotton looms. This loom is used for weaving huck towels. The harness and drop box chain cylinders are positively connected, thereby maintaining one cylinder in a uniform position to the other under all conditions. The illustration shows a 4 x 1 box loom.

A novel feature of construction is the high take-up roll, with a lower cross girt set back of the lay swords, which affords easy access to the loom under the warp.

For driving there is a choice of face friction, either by belt or motor, or cone friction.

An improved form of dobby is here shown having two separate harness chain cylinders. With the two cylinders, from one to three distinct weaves can be obtained, giving a very wide range of weaving effects with a minimum length of chain.

The let-off is frictional with a single beam, the complement of beams per loom being one and one-half.

When upper beam stands for two or three beams are required, extra whip rolls are furnished.

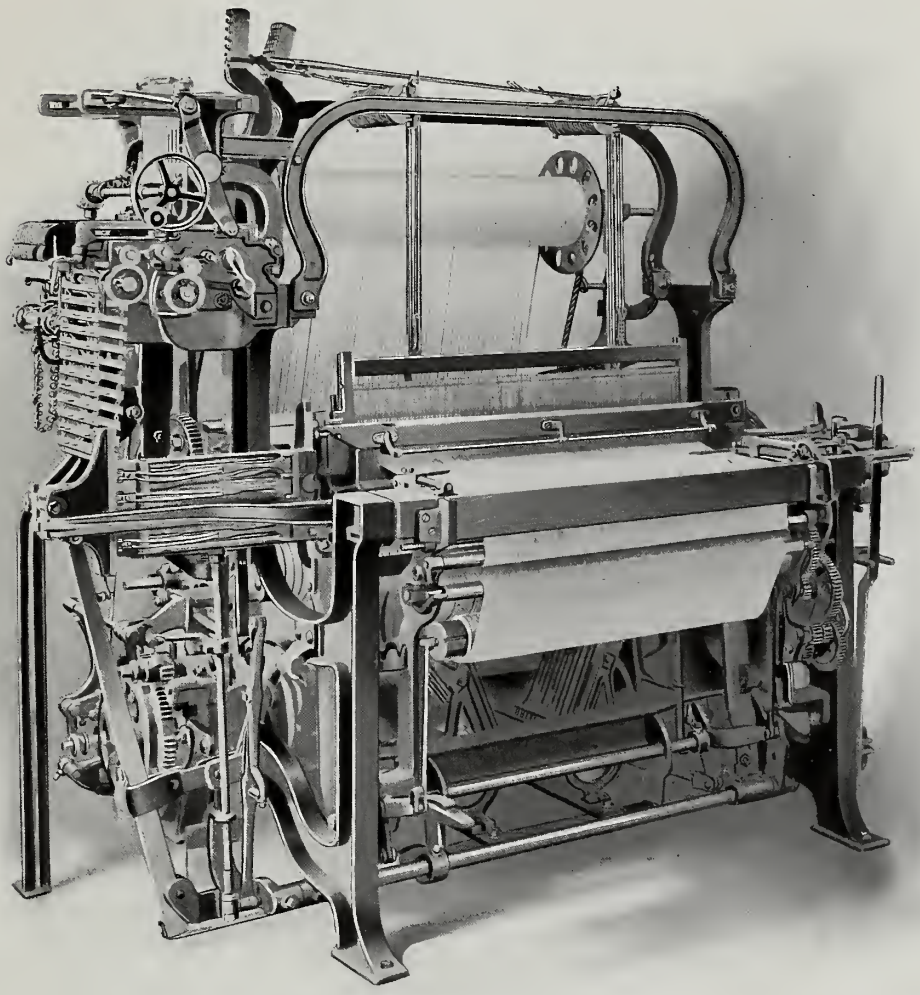
The take-up is positive with five change ratchets. The cloth winds on a descending cloth roll under a steel surfaced take-up roll.

A leno motion with one to three sets of slackener bars may be applied if desired.

Other combinations of shuttle boxes may be assembled upon the loom, and centre or side filling stop motions.

Extras

Spring jacks. Leno motions. Upper beam stands and beams. Two weave attachment. Motor drive. Warp stop motion.



DOBBY COTTON LOOM

Terry Towel Loom

A LOOM for weaving Terry or Turkish towels is developed upon the lines of the standard Gingham Loom, with the special attachments necessary for weaving the looped or pile surface. This loom is supplied with our well known type of box motion, with supplementary cylinder fingers and connections in conjunction with the box motion chain cylinder for controlling the operation of the Terry weaving mechanism.

The loom is driven by face friction pulley on the crank shaft, or motor drive. The harness motion is a simple and efficient under cam and treadle motion for four harnesses or by dobby. A cam on the auxiliary shaft operates a lever to regulate the movement of the swinging reed to form the terry.

The take-up is positive, in connection with which is a sprocket chain measuring device for controlling the length of fabric woven.

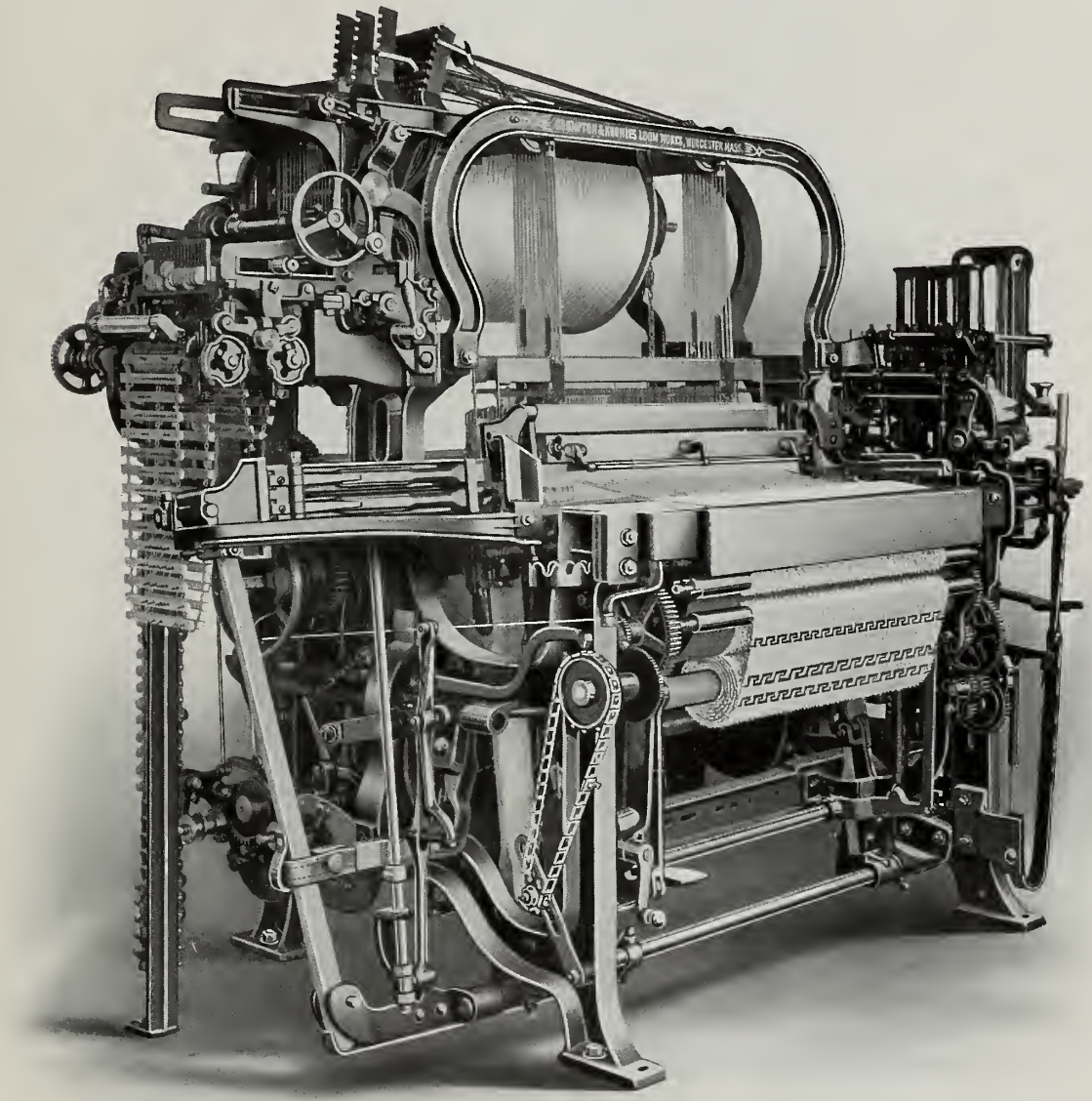
The let-off motion is frictional, with upper beam stands and beam for the Terry warp.

An automatic fringe motion is applied if desired.

AUTOMATIC TERRY TOWEL LOOM

The illustration on the opposite page shows an Automatic Terry Towel Loom. The magazine shown on the end of the loom is filled with full bobbins of yarn. When the yarn on the bobbin is practically exhausted, the absence of the yarn is indicated by a feeler which causes the mechanism to operate, ejecting the empty bobbin from the shuttle and inserting a full bobbin of yarn in its place. This operation takes place without the loom stopping or losing a pick.

A great many of these Automatic looms are running successfully and the automatic feature increases production and lowers cost. It may be applied to either the Cam or Dobby Loom.



TERRY TOWEL LOOM

Damask Loom

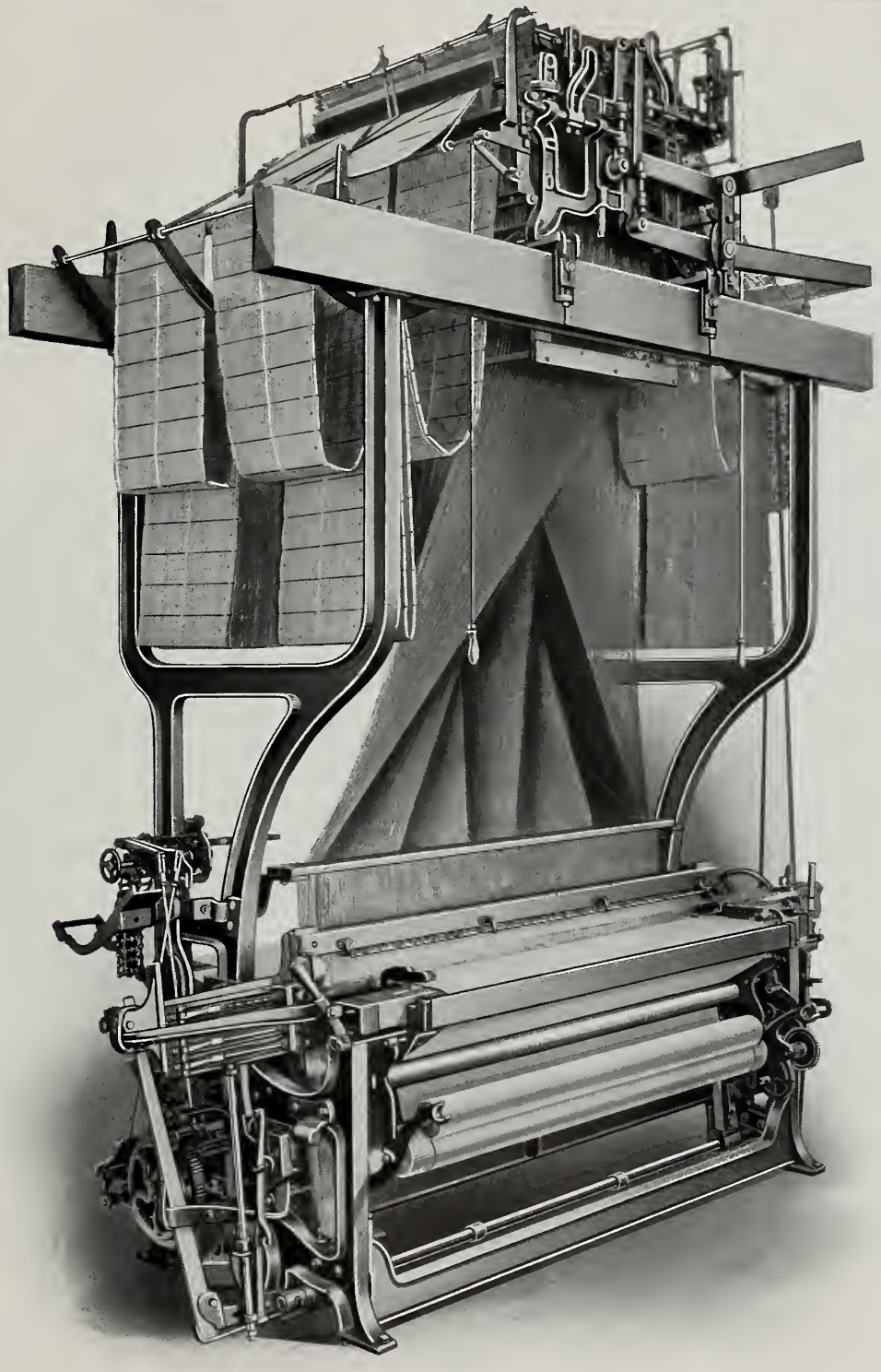
FOR tablecloths, napkins and similar goods in fancy patterns, the Crompton & Knowles Damask Loom is furnished in the form shown, to be used with jacquard equipment, the bottom and crank shafts being extended for jacquard driving.

This loom is driven by face friction pulley either with belt or motor.

For operating the shuttle boxes in any of the usual combinations, our familiar type of box motion is used. There is an attachment on the drop box cylinder motion to operate the box motion direct from the jacquard when so desired.

The let-off is rope friction for single beam. One and one-half beams are furnished. The take-up is positive and conditional, with ten change ratchets furnished with each loom. The number of teeth in the ratchet equals the number of picks per inch in the cloth. The loom is fitted with side filling stop motion, and is built with plain lay or different combinations of shuttle boxes.

The jacquard is mounted over the loom in different modes, namely upon support stands attached directly to loomside, upon pipe supports fastened to the floor, or upon overhead timbers supported from the mill construction.



DAMASK LOOM

Bag Loom

THE Crompton & Knowles Bag Loom, for weaving seamless jute and cotton bags, is built upon a strong frame with large harness cams to insure a proper depth of shed in the harnesses.

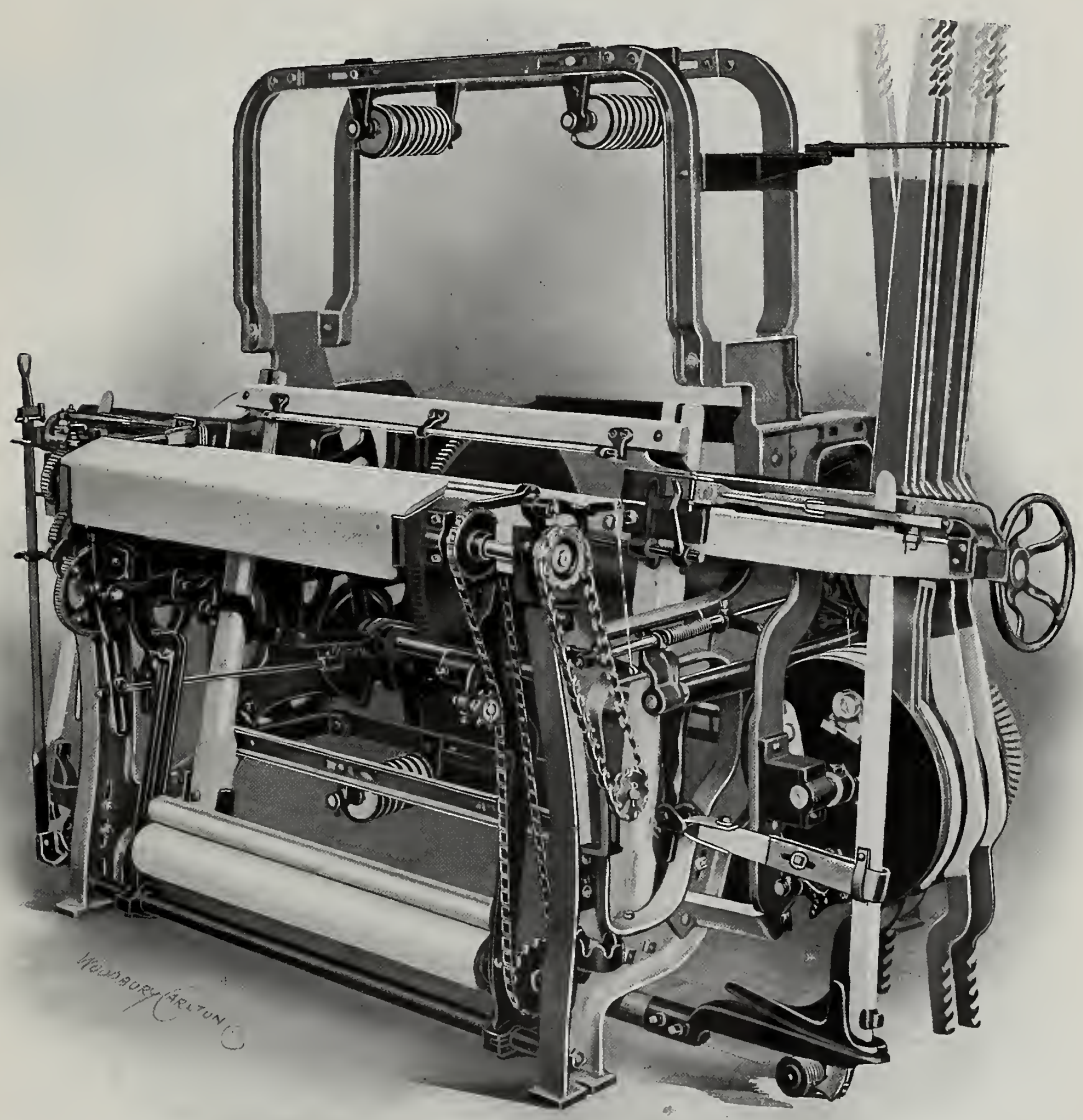
If built for four harness work, a single arch is used, but with eight harnesses the loom has double arches. The drive is by face friction pulley on the crank shaft or motor with side shipper and brake. The let-off is of the geared friction type. One and one-half beams are furnished with each loom.

The take-up is positive. An encased spiked take-up roll in front of the breast beam is connected by chain with a lower roll, the woven fabric winding up on a cloth roll rising in guides over the lower roll.

An attachment for marking the length of bags may be had if desired, also mechanism for interweaving to form the bottoms of bags. The loom shown is equipped with both these attachments.

Extras

Plain two harness treadles and rolls. Bottoming attachment. Marking attachment. Motor drive.



BAG LOOM

Cotton Blanket Loom

A LOOM for weaving Cotton Blankets is built upon a substantial frame with double arches and iron back girts. A variety of harness motions may be used, the standard loom having two and four harness under cams with regular top rollers, or an improved form of top rigging or a side cam harness motion. For more fancy weaving a dobby may be substituted for the cam harness motion, and where a greater range than that of the dobby is desired, a jacquard may be used.

The loom may have 4 x 1; 6 x 1; or 4 x 4 boxes.

The box chain cylinder is equipped with multiplier and reverse chain cylinder motion for materially reducing the length of the pattern chain.

There is a measuring motion for measuring the length of blankets and a dial for registering the number of blankets.

The loom is driven by friction pulley or motor, with 2 to 1 driving gears.

The let-off is friction by means of levers and weights with a ratchet arrangement on the lever for taking up slack rope.

One and one-half beams in halves or full widths are furnished with each loom.

The take-up is positive and includes ten pick ratchets, the number of teeth in the ratchet indicating the number of picks per inch in the cloth. There is also a centre filling stop motion.

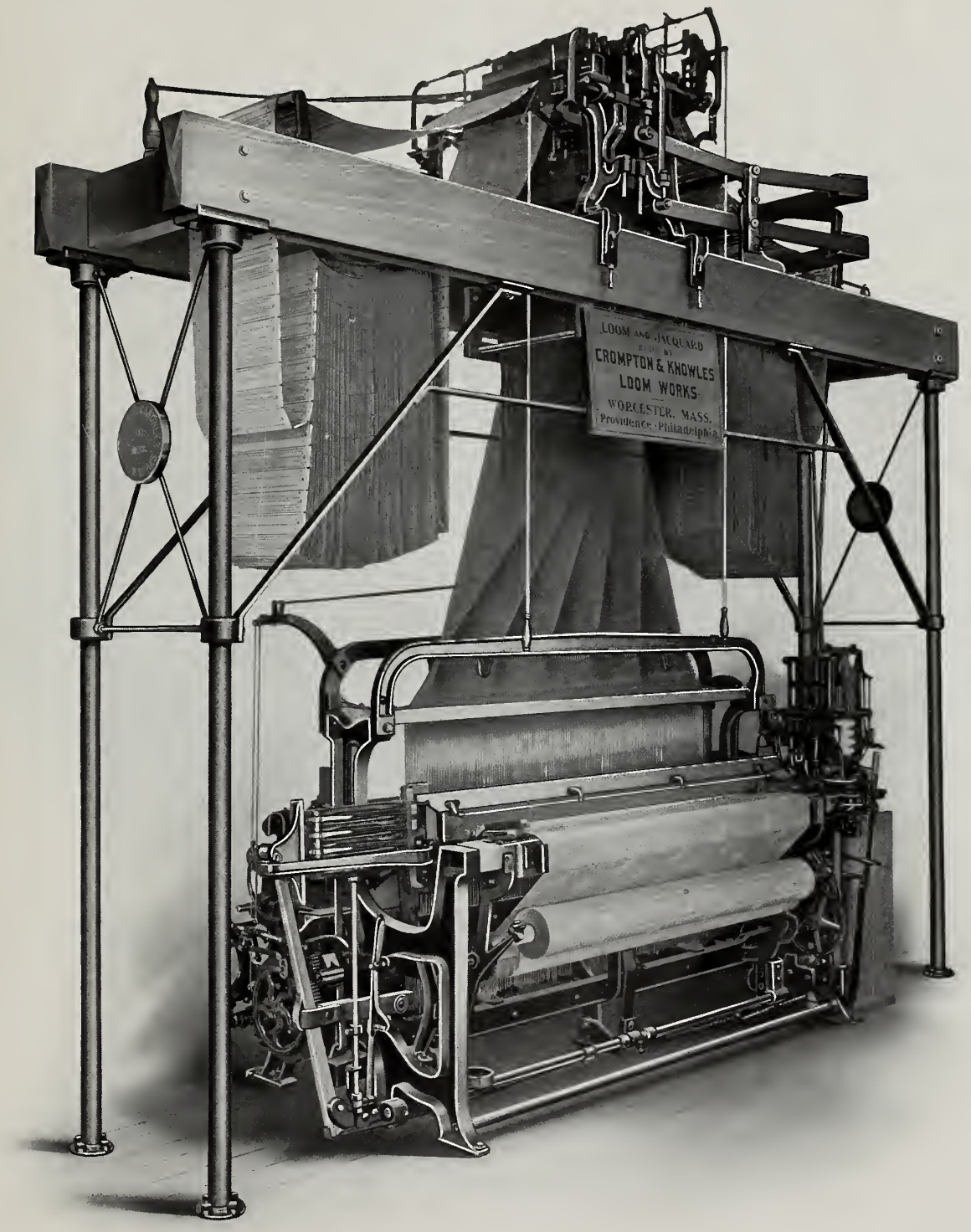
Extras

Dobby, 6 x 1 or 4 x 4 boxes. Special top rigging.

Automatic Cotton Blanket Loom

The illustration on the opposite page shows an Automatic Cotton Blanket Loom. The magazine shown on the end of the loom is filled with bobbins of yarn. When the yarn on a bobbin is practically exhausted, the absence of the yarn is indicated by a feeler which causes the mechanism to operate, ejecting the empty bobbin and inserting a full bobbin of yarn in its place. This operation takes place without the loom stopping or losing a pick. The changing of the bobbin may also be made through the action of the filling fork, making the change if the yarn should break without stopping the loom. The automatic loom always has a single box on the magazine end.

A great many of these looms are running successfully in a large number of mills. The automatic feature increases production and lowers cost. It may be applied to either the Cam, Dobby or Jacquard loom.



AUTOMATIC COTTON BLANKET LOOM

Marseilles Quilt Loom

AN excellent quilt loom is offered in the type here shown. It is designed to meet the requirements of quilt weaving and may be had with uprights and timbers for jacquard supports if desired. The jacquard and the harness shafts are driven by cams on an auxiliary cam shaft.

The usual combination of drop boxes is 2 x 2 as shown, other combinations being used if desired.

The frame is heavy and rigid, has an iron back girt and a centre cross girt.

The drive is by tight and loose pulleys or by face friction pulley on a cross shaft, with bevel pinion geared to bottom shaft or motor drive. All driving gears are encased.

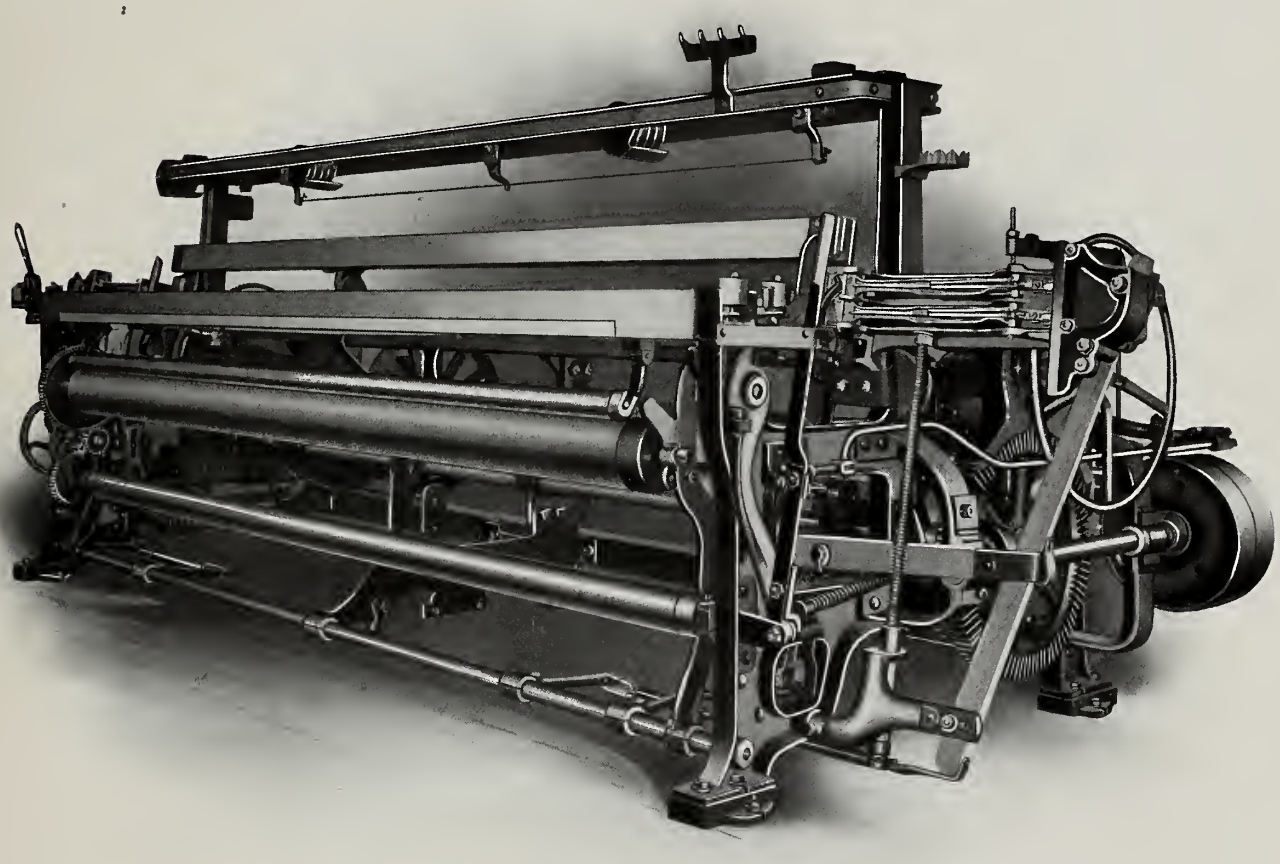
The let-off is steel band friction with levers and weights for double beam. The take-up is positive and has a friction clamp on the bottom roll. Schilling or independent picking is furnished and there is a centre filling stop motion.

SATIN CROCHET QUILT LOOM

A similar loom for satin crochet quilt weaving may be had, arranged for single beam work.

Extras

Upright stands for jacquard support. Motor drive.



MARSEILLES QUILT LOOM

Flat Duck Loom

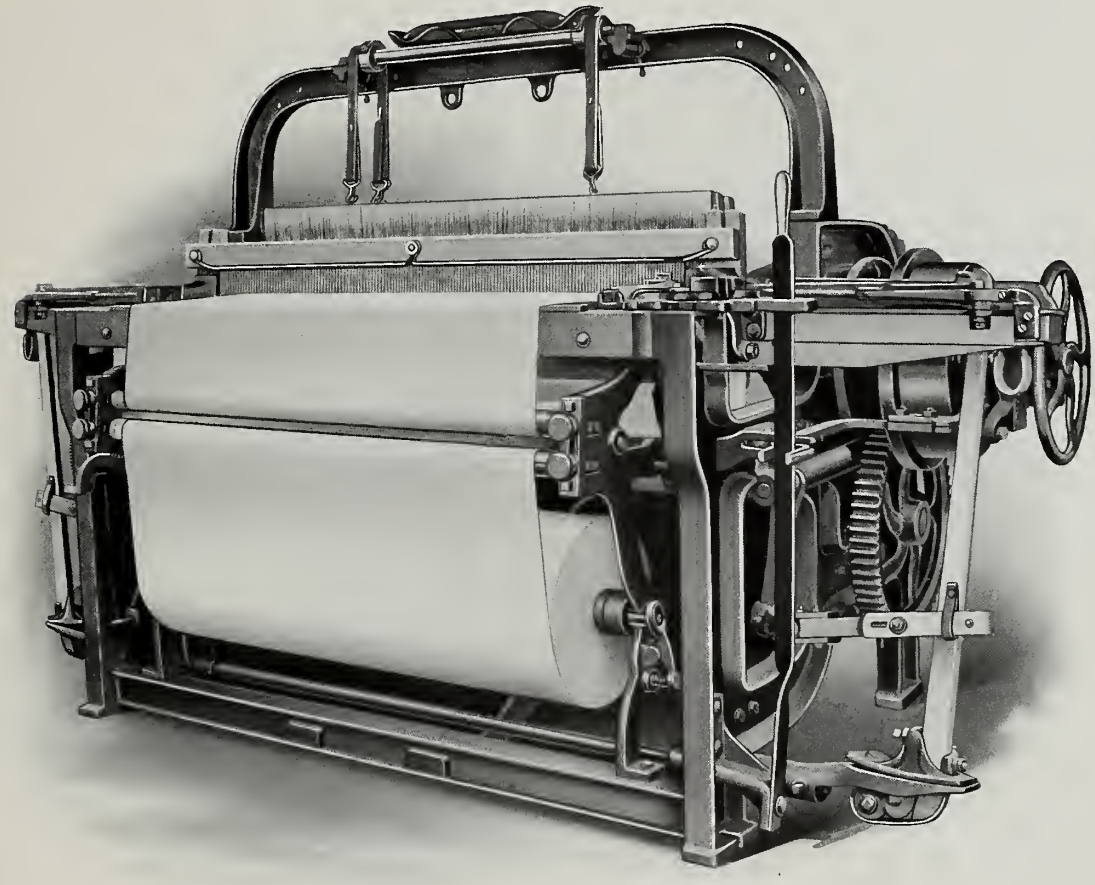
A LOOM for weaving flat duck up to 40 inches in width, and soft hose duck, also for heavy osnaburgs, heavy denims, heavy awnings and other goods of similar character, is assembled upon a two-legged loom-side with wood back girt and single arch. A strong frame supports the driving pulley, which may be either face friction or motor driven. The driving gears are placed at the pulley end of the loom and there is a brake motion operated from side shipper.

The Loom is equipped with a friction let-off with large beam heads, and whip roll. One and one-half beams each loom are furnished.

The take-up is positive with roll positioned to carry a large cut of cloth. Three change gears are supplied. This loom is equipped with a side filling stop motion.

Extras

Three or four harness motion. Tape selvage motion. Double bar whip rolls. Motor drive.



FLAT DUCK LOOM

Light Duck Loom

THIS loom is equipped for weaving light sail cloth and Army duck —grades of goods that require a much heavier type of loom than is built for cotton cloth and sheetings.

It has been carefully designed with reference to the goods to be woven upon it, and the working parts are assembled in a strong and well-proportioned frame.

Particular attention is called to the let-off and take-up mechanisms, which are specially designed for this grade of duck.

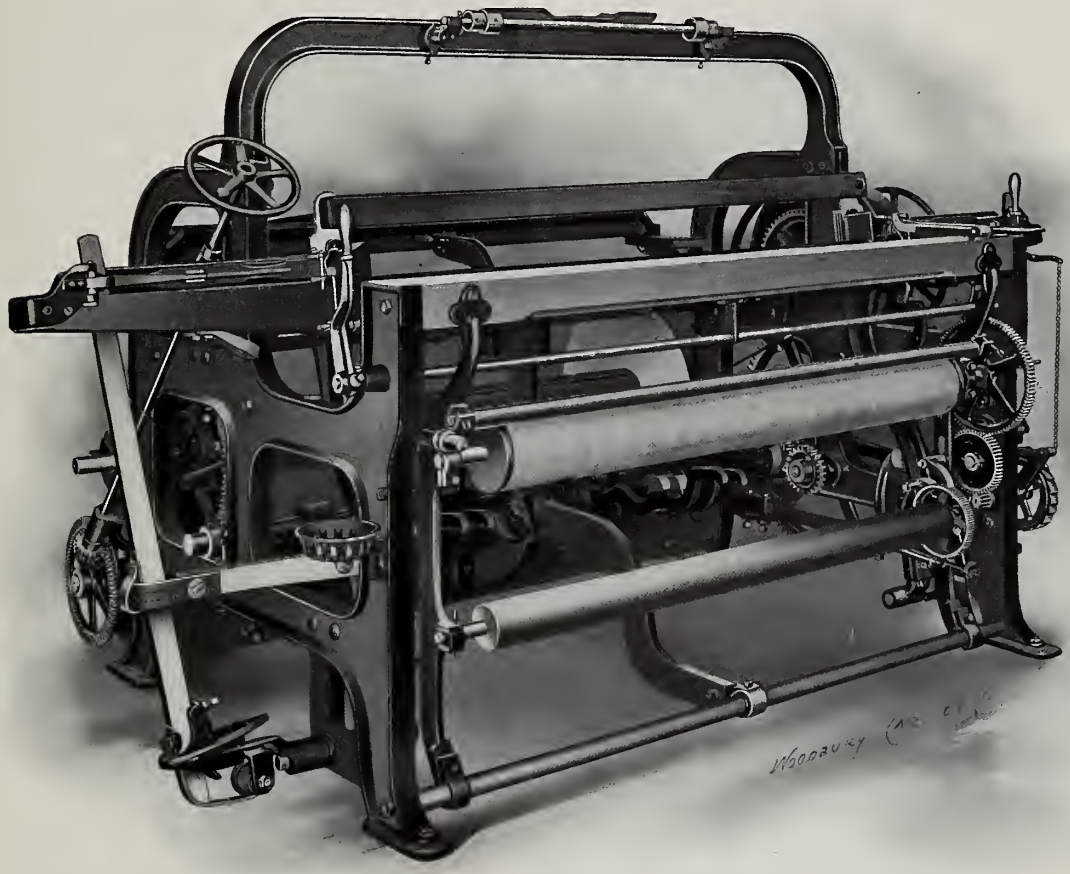
The loom has a single arch supporting the harness roll shaft for the cam and treadle harness motion. The warp is carried on a beam with large friction heads and geared friction let-off. One and one-half beams are furnished with each loom. Friction on the beam may be released and the beam reversed from the front of the loom.

The take-up is of the combined positive and conditional type, operated from the bottom shaft with a steel surfaced take-up roll. Five change ratchets are furnished. The lower cloth roll has an independent conditional winding mechanism.

The loom has 2 to 1 driving gears with a face friction driving pulley on the crank shaft. A filling stop motion is applied when desired.

Extras

Three and four harness motion for twill weave. Harness straps, hooks and lam shafts. Double pipe take-up rolls. Motor drive.



LIGHT DUCK LOOM

Intermediate Duck Loom

CERTAIN light duck fabrics, requiring a heavier loom than those previously shown, are woven on the Intermediate Duck Loom.

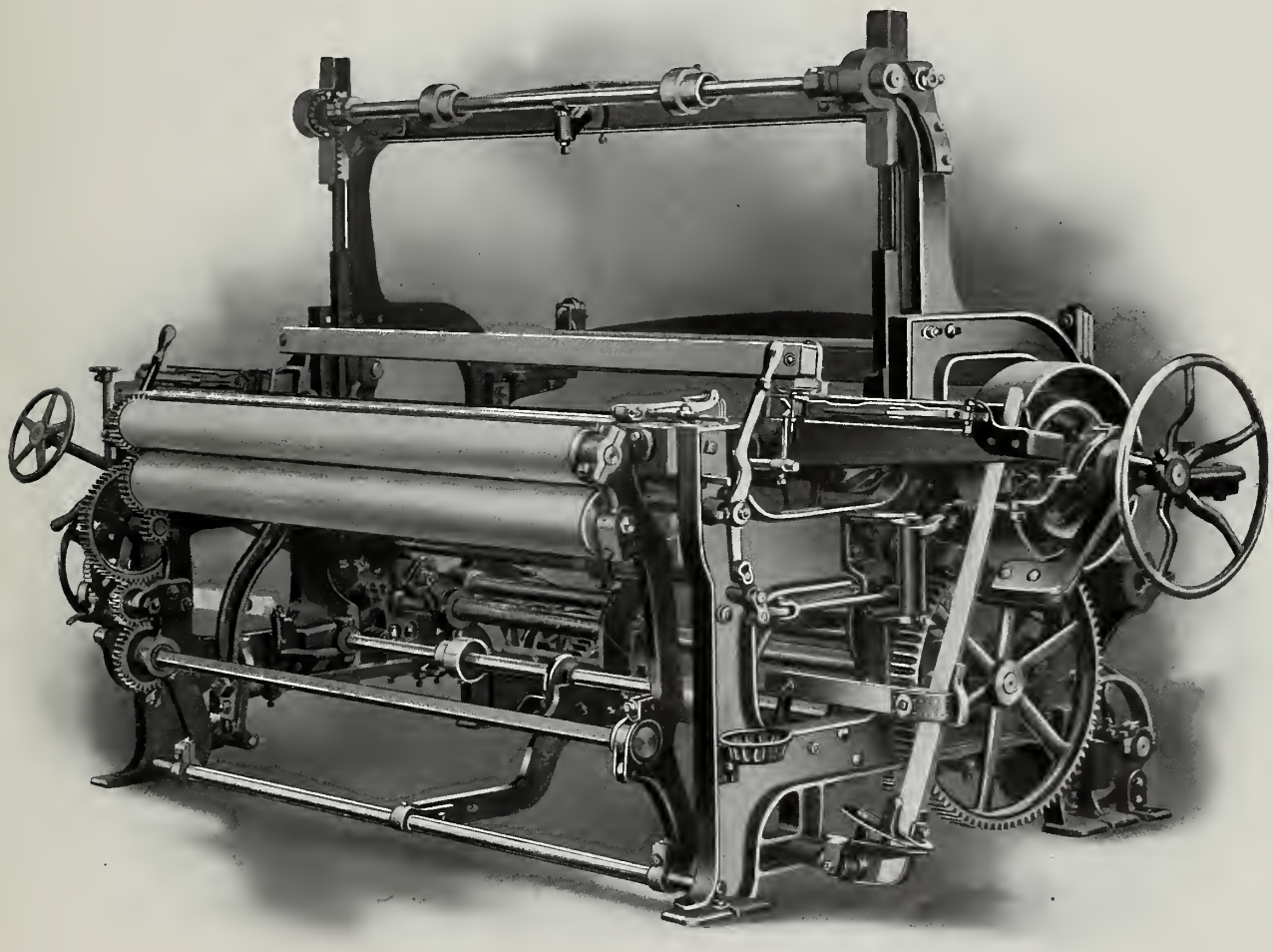
This loom is consistently heavier throughout, and has an improved form of harness motion, consisting of heavy racks and pinions, designed to drive positively both upper and lower harness roll shafts.

This motion is operated by an independent crank shaft geared to the bottom shaft with eccentric dwell gears. The let-off is by friction on an under shaft geared to the warp beam. Beams are made of iron pipe with geared beam heads. Mechanism is included for releasing friction on the beam and reversing it from the front.

The take-up is operated positively from the crank shaft with pipe take-up rolls covered with steel surfacing. The lower cloth roll, upon a square iron shaft, is a wooden shell which can be readily removed. Five change ratchets are included.

Extras

Harness strapping and hooks.



INTERMEDIATE DUCK LOOM

Medium Duck Loom

THE Medium Duck Loom follows the Intermediate in weight and in the substantial character of the working parts. Not only in weight but in design and construction, this loom is a distinct departure from the lighter looms shown on the preceding pages.

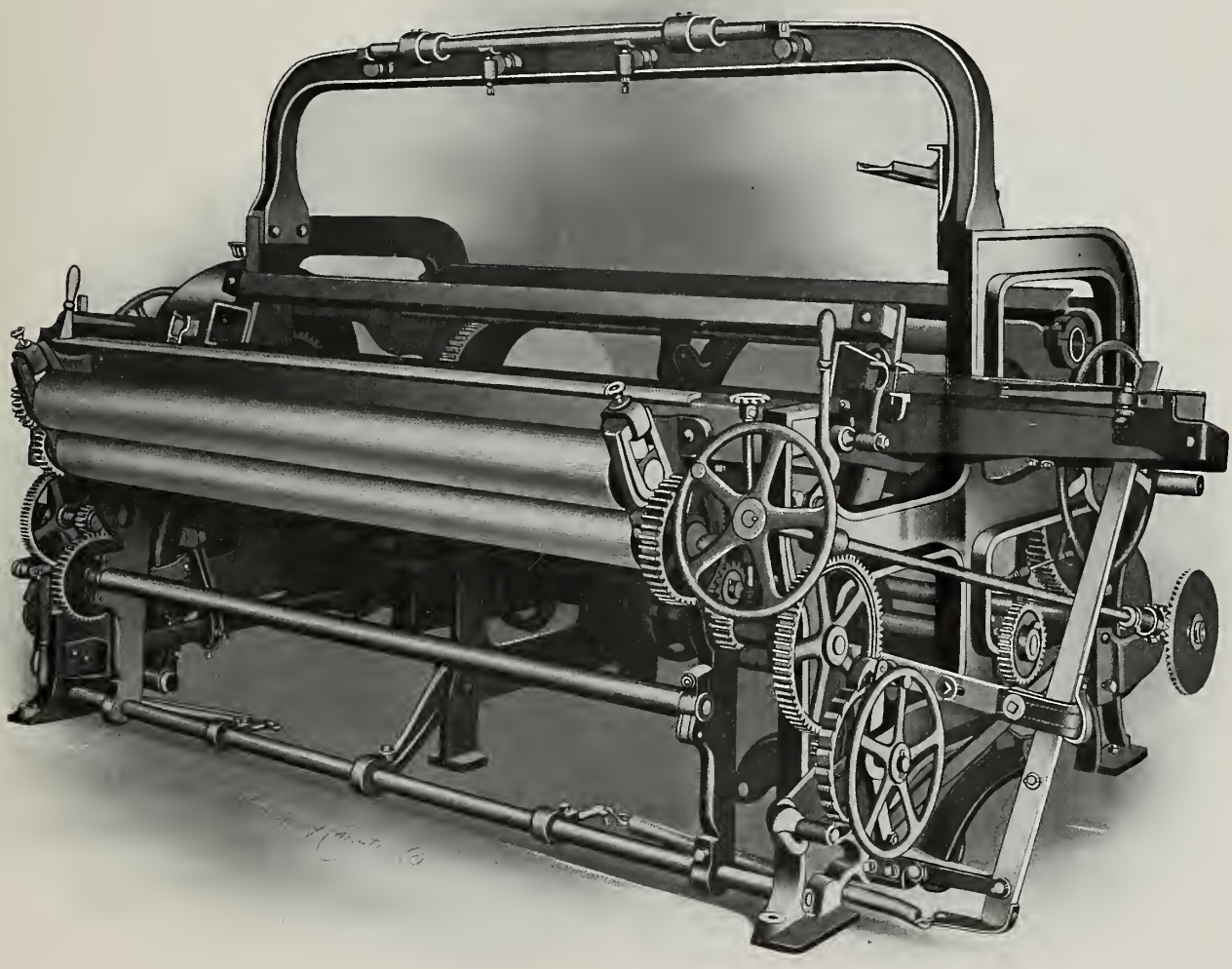
It is designed for weaving a considerably heavier grade of duck, suitable for certain kinds of belting, heavy tent cloth and similar goods.

The frame includes three iron top girts for warp tension. The drive is by a friction clutch pulley on the crank shaft. The harness motion is operated from the bottom shaft by cams and treadles, a single arch supporting the harness roll shafts. Extra sets of cams and treadles are applied on wide looms. The friction heads for the geared let-off are on a shaft under the beam. The warp beam is of iron pipe with large adjustable inside heads. Friction on the beam may be released and the beam reversed from the front of the loom. The take-up is positive, with fluted iron take-up rolls and iron cloth roll. Five change ratchets are furnished. Duck looms of this type are sold by weight. This loom may be motor driven if desired.

The cross girts are very heavy and are placed to secure the utmost rigidity.

Extras

Harness strapping and hooks. Motor drive.



MEDIUM DUCK LOOM

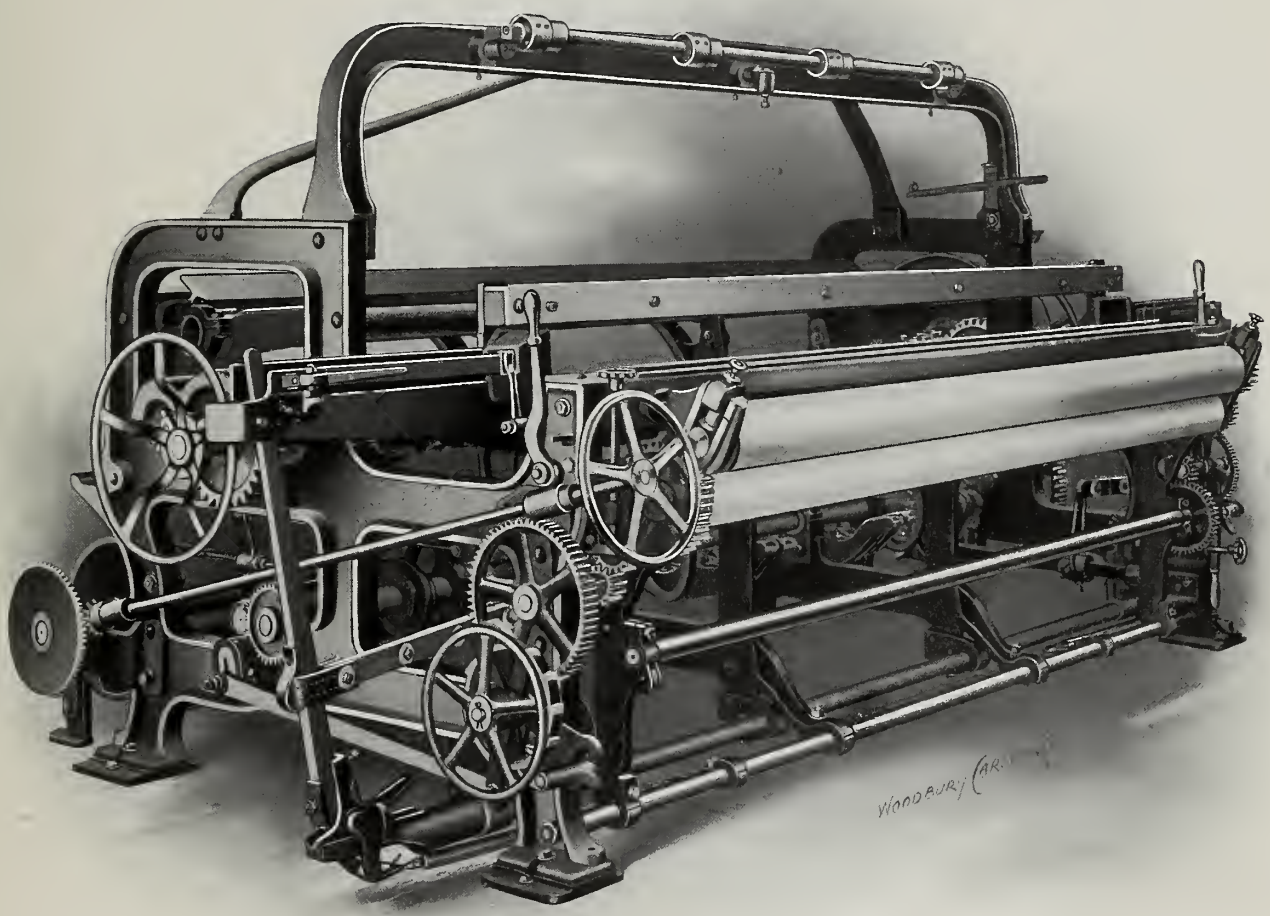
Heavy Duck Loom

THERE is a less radical change in details of construction between the Medium and Heavy duck looms than between the Medium and lighter types of looms. Practically the same general design is repeated in the Heavy Duck Loom, with a marked difference in weight of the working parts and the arrangement for driving. The drive is geared back from the crank shaft to a separate pulley shaft by means of a spur pinion, and there are driving gears at both ends of the loom. This change re-enforces the driving mechanism and qualifies it for the heavier work demanded in weaving heavy belting for which this loom is specially designed.

The description of the Medium Duck Loom on page 62 is closely applicable to the Heavy Duck Loom. The loom is sold by weight.

Extras

Harness strapping and hooks.



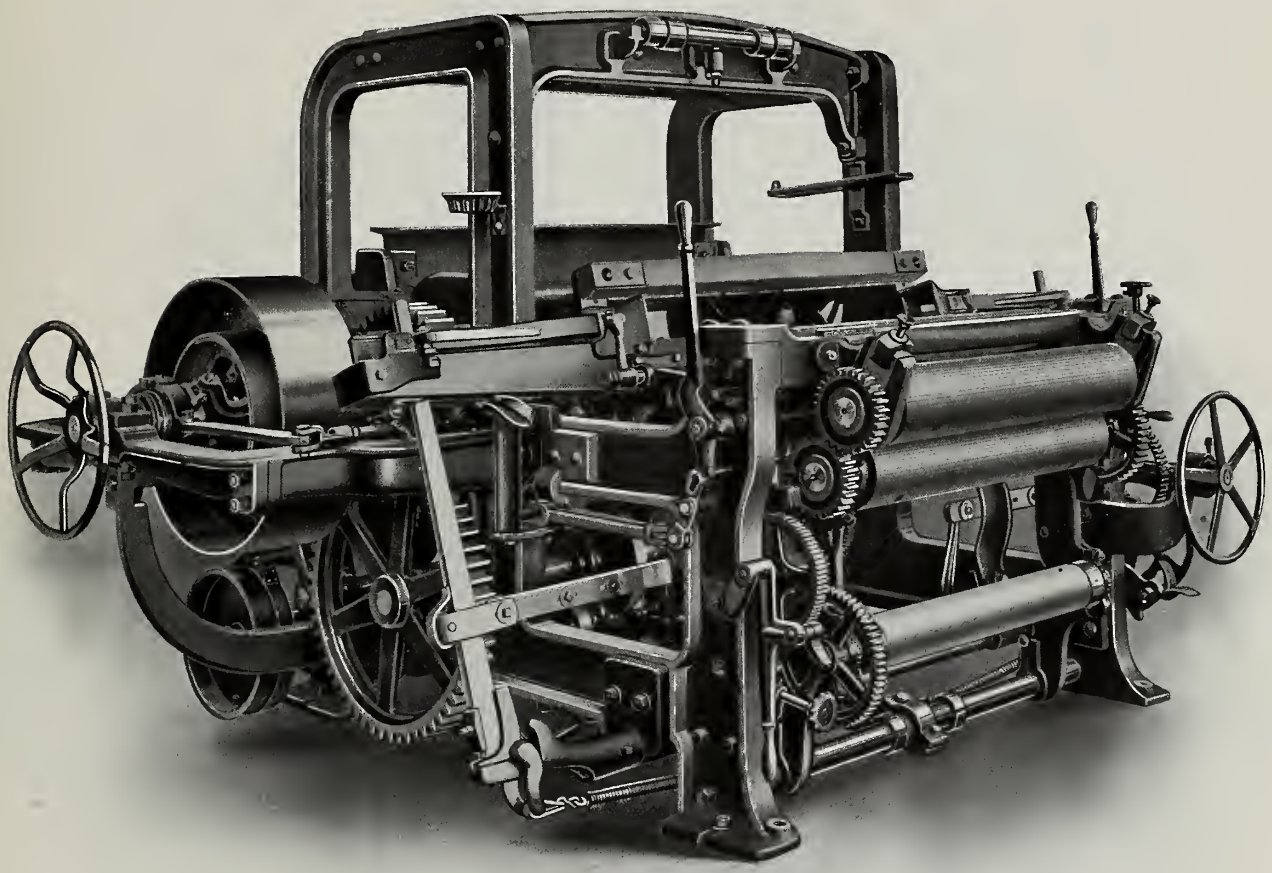
HEAVY DUCK LOOM

Extra Heavy Duck Loom

THE transition from the Heavy Duck Loom to the Extra Heavy introduces several important differences in construction. The frame is very much heavier, having high arched sides with two iron cross girts at the top, an iron lower girt, and three heavy girts for warp tension. The harness motion is either cam and treadle or rack and pinion. The let-off is re-enforced by a supplemental friction head on each end of the lower shaft, having a rope or chain friction arrangement adjusted by levers and weights. The stands for the weight levers are bolted to the floor. This view shows the upright pressure rod and hand wheel for adjusting friction on the beam from the front. The loom is built for very heavy grades of standard duck. In other respects the construction is similar to the medium and heavy duck looms already described, with heavier working parts throughout. The loom is sold by weight.

Extras

Harness strapping and hooks. Motor drive.



EXTRA HEAVY DUCK LOOM

Special Extra Heavy Duck Loom

THIS loom is designed for weaving wide canvas dryer or paper makers felts, which require more powerful machinery than that used in making the heaviest standard ducks.

In frame, general construction and working parts throughout, this loom has been very carefully designed to resist the extraordinary strain involved in weaving these goods. The illustration shows the most recent type, which has been subject to an entire reconstruction along new lines.

A massive frame with heavy girts, channel iron arches, and cross girts at frequent intervals, supports the driving and harness mechanism.

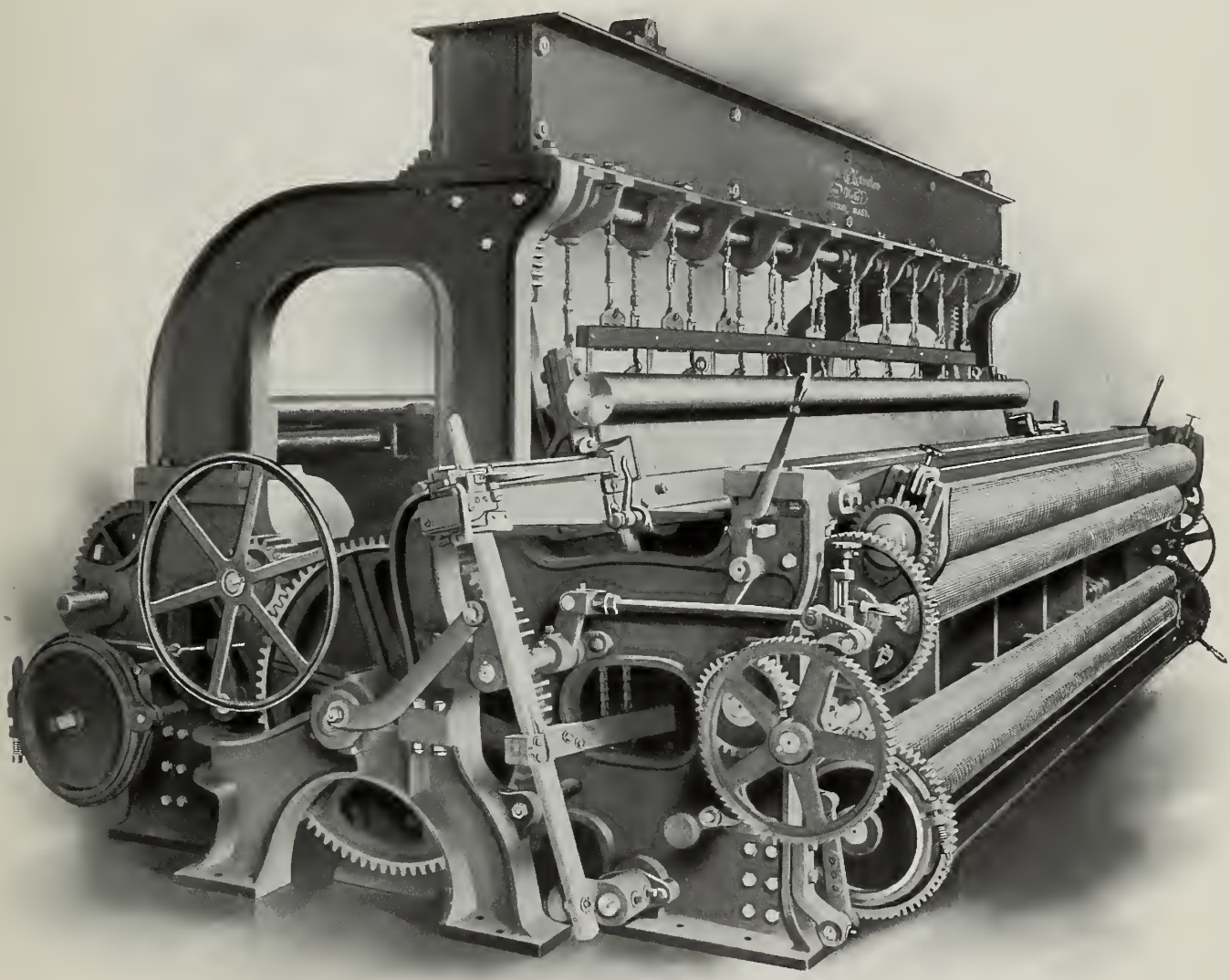
The loom is driven by a friction pulley on an independent shaft with gearing connected to the gearing on a heavy crank shaft of hammered steel, this shaft having gears journalled in outside frames at either end of the loom. All gears have cut teeth.

The harnesses, which are balanced by weight overhead, are operated by a special hammered steel crank shaft with rack and pinion drive to the upper and lower harness rollers. These rollers carry sprocket chain connectors to the harness frames, making a positive and powerful combination for the movement of the harnesses. The chains are adjusted by means of malleable iron turn buckles.

The warp is carried on a beam having a centre rest and geared let-off mechanism. There is a friction shaft under the beam with handle at the front of the loom to release friction.

The take-up is positive through ratchet and gears, driving an upper and lower pair of fluted rolls. The woven cloth passes under a platform to a supplemental winding up mechanism driven from the loom.

Steel is used to a considerable extent in making the gears and castings, the bearings for shafts are removable, and all machine work is done with reference to the most careful adjustment of the working parts. The loom is sold by weight.



SPECIAL EXTRA HEAVY DUCK OR COTTON PAPER FELT LOOM

Narrow Fabric Loom

THE ten space heavy webbing loom, or belting loom, as illustrated is a representative of special looms that we make for narrow woven fabrics.

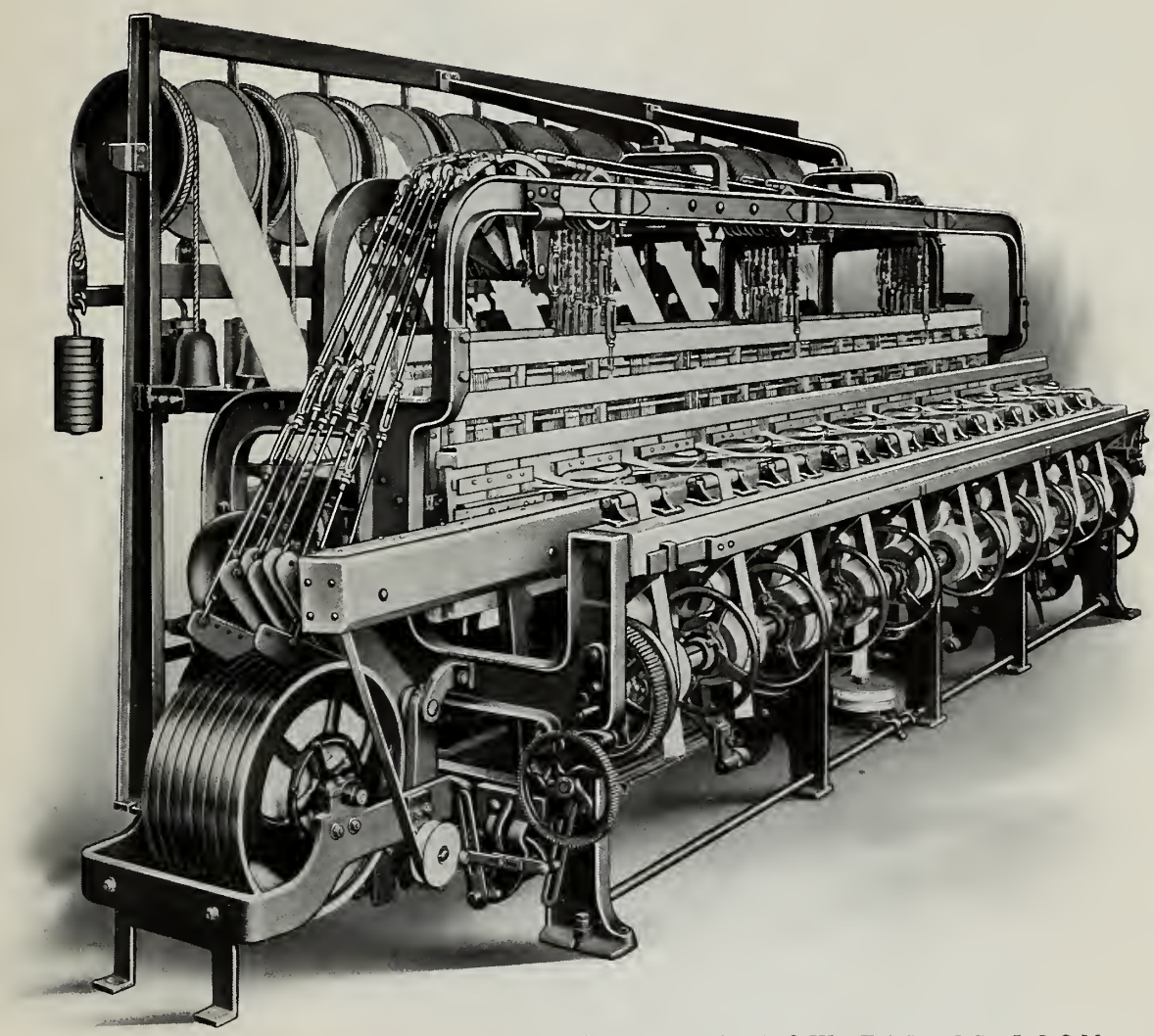
What we have to offer in looms for narrow fabrics covers a great range of fabrics and a variety of looms.

Of the lightest type may be mentioned looms for silk ribbons, labels and tape, as well as edging and kindred fabrics.

We also make a great variety of looms for weaving elastic fabrics, which cover all garter webbing and suspender webbing.

In the heavy looms, we make a specialty of asbestos brake band looms and looms for cotton webbing and belting of 1, 2, 3 and 4 plies in thickness and up to 7″ in width.

Owing to the variation in the construction of narrow fabric looms, we would suggest that inquiries be accompanied by samples of the goods to be made and with the information as to the required product in a given time.



NARROW FABRIC LOOM

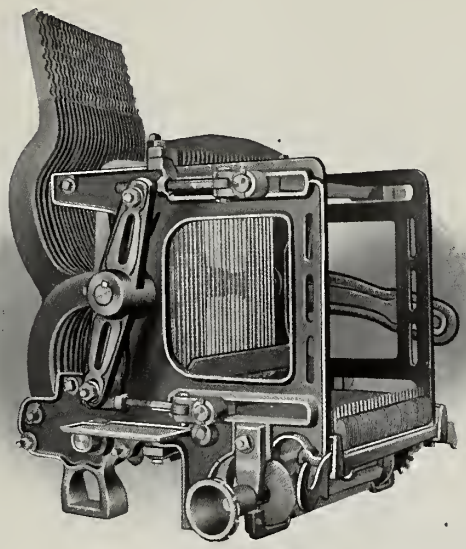
Dobbies

OUR dobbies are well constructed, of first-class workmanship and are adapted for a wide range of fancy weaving. They are built in large variety in from 8 to 32 harness capacities. Among these are single index, double index, double cylinder, rocking cylinder and other types of dobbies, each adapted to the particular loom for which it is intended.

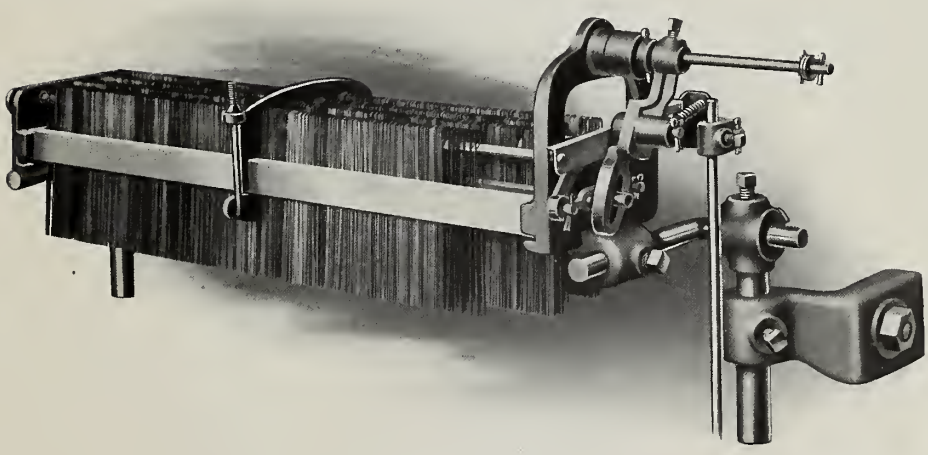
The illustration shows a double index dobby. Two rows of pegs are used in each chain bar, and two corresponding sets of indicator fingers. One row of pegs indicates the top set of hooks, the other row the bottom set of hooks. In this dobby the pattern chain advances but one bar every two picks of the loom, making the action very easy on the pegs and hooks. This type of dobby is useful for weaving long patterns and requires only half as many bars of chain as would be necessary on a single index dobby. Besides furnishing dobbies on looms, we supply them to be attached to old looms.

Warp Stop Motion

The illustration shows the latest idea in warp stop motions. These motions are well made and are exceedingly simple in their operation. The vibrator or arresting device operates within the upper part of the drop wire. The position of vibrator removes all liability of gathering of lint. The vibrator bars are held by steel discs in the frame head, allowing an easy, oscillating movement. When change of warp requires more than initial installation of wires, additional bars and wires are readily added without removal of any part of the motion, as the rod heads are adapted for four sets of bars at least. The form of main frame and attachable parts admits of the motion being positioned at any point on the loom frame, regardless of the crank shaft tie rods or warp rails. The frame is so constructed that either closed or open drop wires can be readily used.



DOBBY



WARP STOP

A FEW OF THE DIFFERENT TYPES OF LOOMS WE BUILD

Asbestos
Sisal Bag
Press Cloth
Heavy Belting
Brocatelle
Cane
Cocoa Matting
Linen Crash
Fly Net
Drapery
Linen
Matting
Mohair
Hammock
Lappet
Double Shuttle Plush
Plush
Shawl Fancy
Upholstery
Window Shade
Burlap
Curtain
Velvet

Woolen and Worsted
Woolen Blanket
Flannel
Cassimere
Clay Twill
Dress Goods
Felt
Gem Dress Goods
Gem Worsted
Intermediate Worsted
Heavy Worsted
Jacketing
Satinet

Cotton
Bag
Cotton Blanket
Cotton Plush
Crochet Quilt
Damask
Denim
Handkerchief
Gingham
Jean
Lining
Marseilles Quilt
Mosquito Netting
Sheeting
Huck Towel
Terry Towel
Corduroy
Tire Fabric

Duck
Flat Duck
Light Duck
Intermediate Duck
Medium Duck
Heavy Duck
Extra Heavy Duck
Special Ex. Heavy Duck

Carpet and Rug
Tapestry
Axminster
Weft
Chenille
Wilton
Brussels
Grass Twine
Paper Carpet
Fibre Carpet

Silk
Embroidery
Gem Silk
Dobby Silk
Swivel
Veiling

Narrow Fabric
Tape
Hose
Webbing
Belting
Brake Lining
Ribbon
Bandage
Wicking

Write us for information about any of these looms

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